AMIGA USER INTERNATIONAL

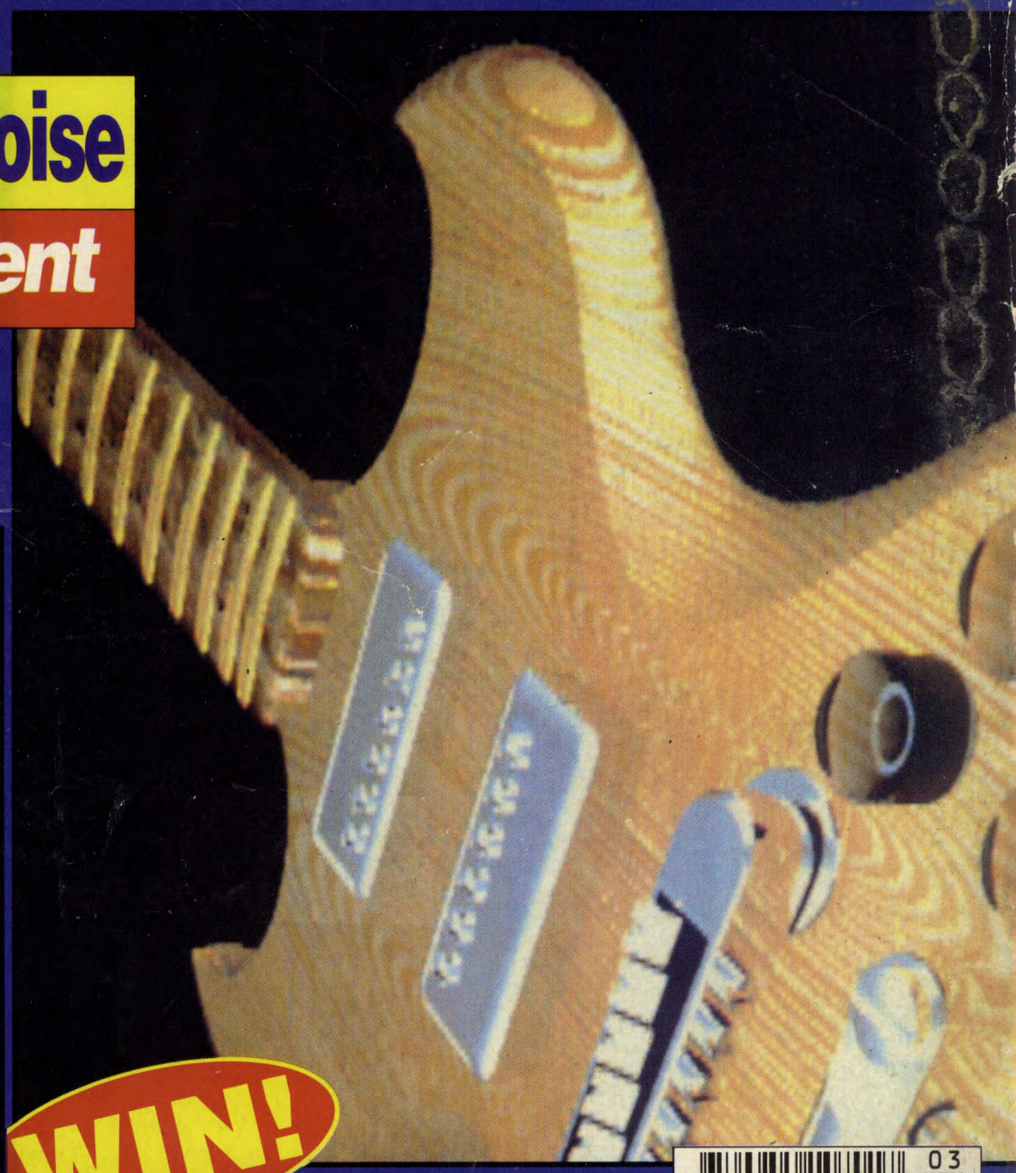
£2.95 March 1992

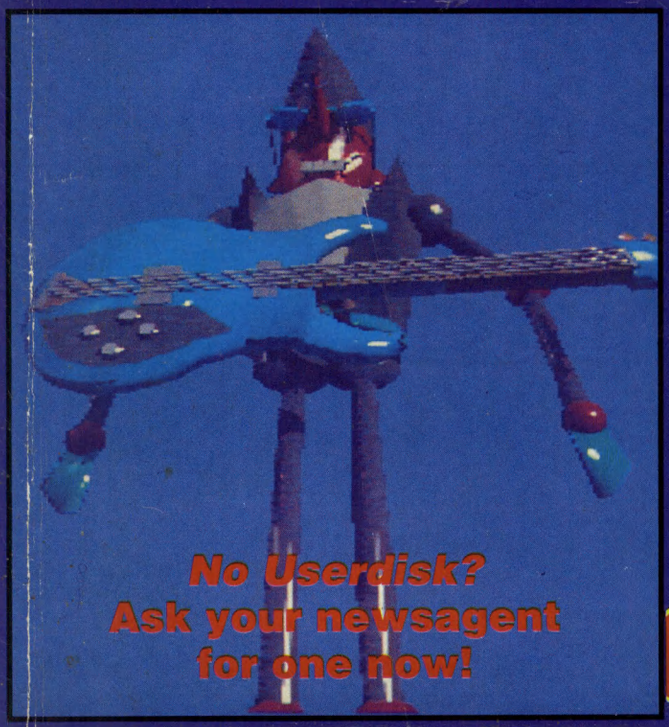
On test:
Aminet, Editman, Home Accounts II, Megachip

Head to Head
Real 3D v Imagine

The Art of Amiga Noise
Special Supplement

Plus Dealing with Databases and Backup Made Easy





No Userdisk? Ask your newsagent for one now!

WIN!
£2000 of Great Dr T's and Blue Ribbon Music Software and a hot new Fujitsu printer

FULL MEGABYTE *AUI* HYPERDISK

03
9 770955 107017

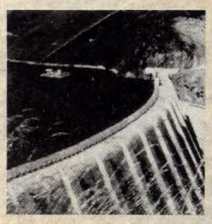
Power Scanner

POWER SCANNER FEATURES

100-400 DPI scanning resolutions
64 Greyscales
Thru'port for printer

SOFTWARE

Full screen image editor
Interlace mode on/off
Edit true greyscale & colour images
Fully multi-tasking



ACTUAL AMIGA SCREEN SHOTS

EDITING

Cut rectangle, cut lassoo, crop, flip, rotate, scale, draw, lines, circles, boxes, elipses, freehand, zoom mode

SCANNING

Unique 'True feel' real time scan mode · Know instantly if you are scanning the image too quickly.
Automatic selection of 100-400 DPI
Produce true greyscale images

Capture It

£99 inc. VAT
GREYSCALE

£239 inc. VAT
COLOUR
AVAILABLE SOON

Power Computing Ltd., Unit 8, Railton Road, Woburn Road Industrial Estate, Kempston, Bedford MK42 7PN.
Telephone 0234 843388 Fax 0234 840234

All prices include VAT, delivery and are subject to change. Specifications are subject to change without notice. Next day delivery £4.50 (U.K. mainland only). Dealer enquiries welcome. All trademarks acknowledged.

POWER COMPUTING

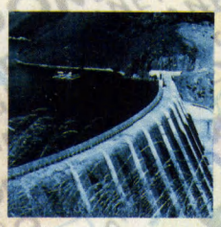
Power Scanner v1·7

Features
100-400 DPI scanning resolutions
64 Greyscales
Thru'port for printer

Software
Full screen image editor
Interlace mode on/off
Edit true greyscale & colour images
Fully multi-tasking

Editing
Cut rectangle, cut lassoo, crop, flip, rotate, scale, draw, lines, circles, boxes elipses, freehand, zoom mode

Scanning
Unique 'True feel' real time scan mode - Know instantly if you are scanning the image too quickly
Automatic selection of 100-400 DPI
Produce true greyscale images



Actual Amiga Screen Shots

£99 inc. VAT **£239** inc. VAT
GREYSCALE COLOUR

PC880B Power Drive

£69·95

Viruses, diskswapping, clicking drives, disks which won't back up. Is there no end to the whingeing of the Amiga user?

At Power, we want to tell you just where you can stick your disks and worries. In fact we will show you. The slot in this picture belongs to our PC880B, the first intelligent disk drive. Insert a disk.

Now you can back up at lightning speeds using the inbuilt Blitz Amiga hardware*, with free software, (even if the disk is Atari or PC) and if your computer has a virus the PC880B will stop it being written to the bootblock of any of your drives, though you can still save files as normal.

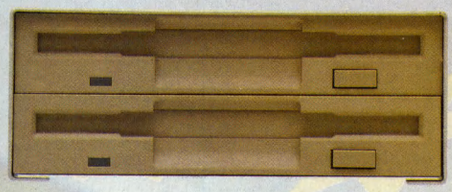
When you do not want these features, switch them off and the PC880B will sit quietly, without clicking, pretending to be simply an extra drive.

The PC880B, the only drive to introduce Blitz Amiga, the Power anti-click device and to combat viruses, is only available direct from Power, priced at just **£69·95**

We have noticed how pricey unintelligent drives are. Perhaps, it's your turn to tell people where to stick it.

*Due to the precision nature of the Blitz copier high density disks may be required with some internal drives.

Dual Drive



Our latest dual drive uses the slimline, ultra low power NEC drive mechanism. This drive takes less than half the power of a normal floppy drive. The new dual drive includes all the features you would expect from a Power Computing Drive.

The NEC drive mechanism is able to access high density 1·44MB disks. While this may not be of use to you at the moment (the Amiga can only access 880K), watch this space for our new 'high density' Interface, on the market soon!

Whisper quiet operation

Blitz Copier built-in (switchable)

Virus blocker built-in (switchable)

Anti-click

PSU included

£125

New Products

released or available soon
1MB with thru'port
512K 16 chip RAM
8MB board with thru'port
Kickstart ROM Switch
1·44MB Interface
1·44MB Disk Drive

Name

Address

Postcode

Telephone No.

System owned

Description

Credit card No.

Expiry date

I enclose a cheque/postal order for £

Signature

Make cheques payable to **Power Computing Ltd**

Power Computing Ltd
Unit 8 Railton Road
Woburn Road Industrial Estate
Kempston Bedford MK42 7PN
Ring your credit card order through on **0234 843388** or fax your order on **0234 840234**

All prices include VAT, delivery and are subject to change. Specifications are subject to change without notice. Next day delivery £4·50 (U.K. mainland only), all trademarks acknowledged.

Power Computing SRL Italy, Via Delle Baleari, 90, 00121 Ostia Lido, Roma
Tel (06) 5646310 (2 lines) Fax 5646301

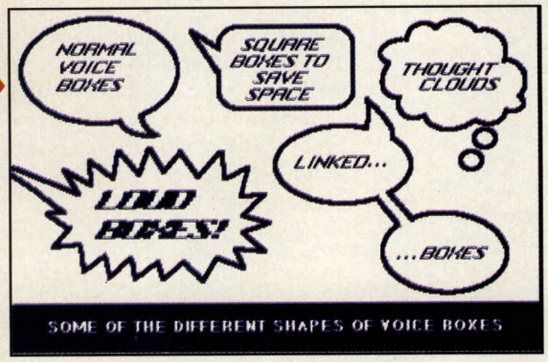
Power Computing France, 15 Bld Voltaire 75011, Paris France
Tel (1) 43570169 (6 lines) Fax (1) 43380435

Power Computing U.S.A., 21 South 5th Street, Suite 900, Philadelphia, PA 19106
Tel 215 922 0050 Fax 215 922 0116

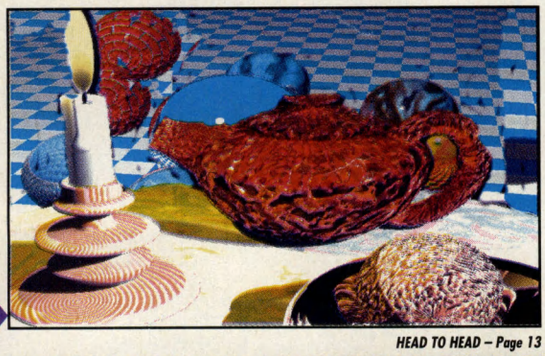
AUI

AMIGA USER INTERNATIONAL
MARCH 1992 VOL 6 NO. 3

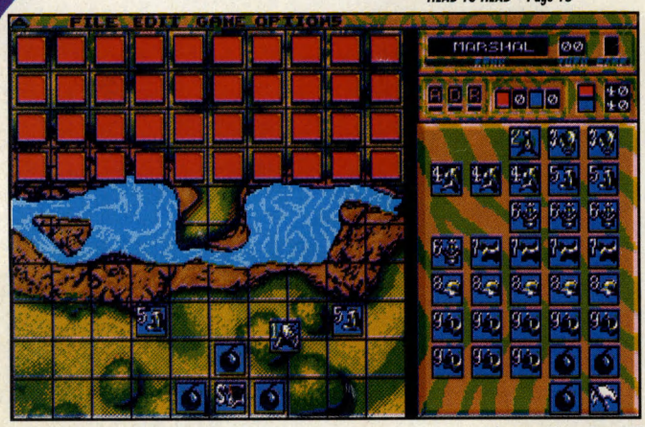
AUI Userdisk – Page 6



Mastering the Art – Page 57



HEAD TO HEAD – Page 13



Advenutre Now – Page 112

CONSTANT FACTORS

5 The Amiga Dimension: As the new operating 2.0 system becomes available to all Amiga users, Managing Editor Antony Jacobson asks some leading questions about where the Amiga is to go next and whether CBM are offering too little , too late.

34 Newsfile: , JCL upgrades its TV star ColourPik,SoftLogik does the same for Pagestream, ICD cuts prices, Great Valley launches a new range – its all in the Newsfile!

147 Amiga Answers: Andy Eskelson battles through this month's wave of technical queries and comes up with right answers.

150 Amiga Letters: If you have a point then Bud Vennos offers you the chance to Write to Reply.

154 The Fat Lady Sings: Andy Eskelson eat your heart out. The Fat Lady takes on the readers' agonsied cries for help.

SUPERDISK

10 Hyperdisk: This month, its Superdisk time. A miracle 2 disks in one. We have crammed the disk full of the latest useful utilities. When un-archived, a second disk can be created with even more useful demos. This is the magic of Amiga technology!

SPECIAL SOUND SUPPLEMENT

67 The Art of Noise:

20 pages of features from the Amiga's music experts Mike Nelson, Paul Overaa, and Steve Simpson. Between them they cover sampling, midi and music equipment. All you need to know to get you started, go on and finish like an expert in the fascinating world of Amiga sound.

TEST DRIVE

18 AmiNet: This low cost networking system is put through rigorous multi-user tests by Mike Nelson.

24 Home Accounts 2: Pat Kelly examines this financial package, designed to put your house cash in order.

27 IV24: Gary Fenton previews this hot 24-bit graphics board from GVP.

28 Charts and Graphs: *AUI*'s consultant Art Editor, Graham Baldock, test drives a useful graphical aid for illustrating business presentations.

32 Molecular Graphics: If protons and neutrons are your interest then Mike Nelson's examination of MoG will fascinate and amaze you.

51 Caligari: Read about the latest version of the astonishing graphicas package in a preview from Gary Fenton.

61 Fujitsu DL1200: Pat Kelly tests a new wide carriage 24-pin dot matrix printer.

62 CDTV: Janet Bickerstaff reviews many of the now available CDTV titles.

64 Education: More education products reviewed by Martin Witton.

92 Editman: Gary Fenton examines this "no Amiga required" video editing studio.

118 AmiBack: Back up hard drives with this interesting and helpful utility, tested by Mike Nelson.

HEAD TO HEAD

13 3D Rendering: Barry McCarthy puts Imagine versus Real 3D vl.4 to battle. WIll the two top rendering packages come up to professional standard – which is best?

HARD COPY

114 Program Design Techniques: Paul Andreas Overaa's book is given an unbiased review by Mike Nelson (he says!)

135 Simply Dos: Daphne Moss reports on a book which is too simple and too interesting to miss.

Cover Guitar Photograph: Courtesy Alternative Image

MENTOR

52 Workbench 2.04 *Part III*: Continuing this multi-part overview, Mike Nelson looks at the new operating system from a programmers viewpoint.

98 A to Z of the Amiga *Part II*: John Kennedy and the *AUI* team continue their totally reliable guide to the Amiga and its jargon.

116 Confessions of an Apprentice Amiga User: Alan C. Cranleigh exclusively reveals his private memoirs.

126 Polynomials: Paul Overaa starts a two-part series on the concepts behind this key area.

130 Dealing with Databases: Michele Pietrantonio mulls over the uses of databases in modern day computing and shows you how to deal with them easily and effectively.

USER PORT

57 Mastering the Art – Cartoon Capers: Graham Baldock shows how a simple drawing or two can be made into a real-life cartoon strip using your Amiga.

90 PD Demos: The pages where Gary Fenton demonstrates the latest PD creations from around the globe. This month some really sensational stuff from Scandanavia.

123 Scrolling in C: There's a demo on the super disk with full source code, of Paul Overa's tutorail on this interesting subject.

134 QUAD: Reggy Stair is back with more Quick and Dirty tricks. He's a really nasty one, isn't he?

136 Fred Fish Update: Norman Stone, custodian of ICPUG disks, reveals the latest Fred Fish catches and watches the whole range of goodies from the PD master of them all . . .

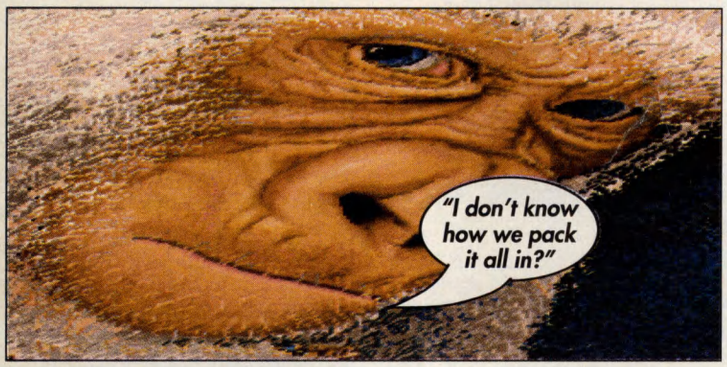
SPECIAL OFFERS

23 The Amiga Buyer's Guide: It's all here, as compiled by the experts in the Amiga market! Get it now!

31 Subscribe: Subscribe to *AUI* and receive special incentives. Extra free copies of *AUI*. What more could your Amiga ask for?

111 THINK: A once in a lifetime offer. The page where exclusive offers are plentiful.

ENTERTAINMENT



102 Birds of Prey – *Electronic Arts*
104 Robocop 3 – *Ocean*
106 Barbarian II – *Psygnosis*
107 Populous World Editor – *Electronic Arts*
107 Oh! No! More lemmings – *Psygnosis*
108 Match It – *Think*
110 Populous II – *Electronic Arts*
112 Adventure Now! with Andy Moss
112 Hard Nova
113 Moonstone
113 Rules of Engagement
114 Stratego

COMPETITION

88 A terrific Music Competition with £2000 of prizes from Dr. T and Blue Ribban Soundworks. Your chance to get the world to sing!

96 Win a brand new wide carraige Fujitsu Printer – be the DTP King of the block!

AMIGA DIMENSION

Dear *AUI* Reader,

It is over two years since the Amiga 3000 was launched. It was and is even now a value for money computer. It marked the first public access to the then new Workbench 2.0 system.

Previously, in March of that year, 1989, I had a long and informative discussion with one of the leaders of Commodore's operating system project team. What he told me made it all seem set fair for a quick and major 2.0 upgrade to the Amiga's operating system with 3.0 already on the horizon.

In this issue of *AUI*, we carry a Newsfile report that at last that 2.0 version is being made available to the now huge worldwide Amiga community. It is, you will be relieved to know, no longer necessary to go out and buy a new computer, a "Plus" - 500 or 1500 - or a 3000 just to use Workbench 2.0. At about £80.00 the Amiga world will probably give it a warm welcome.

But should it? Why has it taken so long to make this upgraded system available? I don't mean just this £80 version but the whole Amiga operating system has been direly in need of an upward push for years now. It is a decade since it was created and then it excitingly led the field. Now it is lagging behind the changes that are happening fast across the whole range of computerisation. The onetime power user's dream, the Amiga, is limping as the competition, like even the the boring and once underpowered MSDOS machines, increase in speed and strength. It is forecast that by the end of this year MSDOS 486 machines - at least equal to our 68030's- will fall in price to under £1000. Will the 3000 be able to compete?

Another question must be "Why bring out an A500 PLUS at this late stage with still the standard 68000 on board?" And where are the really enhanced chipsets that Jay Miner talked to *AUI* about back in 1988? And for the future, perhaps the most important question of all, "Where is the Risc-based Amiga - or its equivalent - that should be ready for launch if the Amiga is to be at the leading edge of computing as it once was?"

If Commodore are only now releasing the 2.0 version, when will 3.0 hit the streets? If it is another two or three years down track before it appears and is available to the Amiga users, CBM may find the development is too little, too late. The more powerful and lower priced software that is arriving on the whole computer scene needs an equally powerful platform to run on and it needs it,if not now at least very soon.

I have often defended Commodore from critics who feel it should have done more in promotional, technical, financial or even moral support . I have pointed out that CBM is a commercial not a research organisation or a charity. It takes business decisions which are not necessarily to make our lives' easier or better but to make money. However,in the computer world, speed of change is constantly increasing and unless a company can respond to it, others will outpace it and take the potential market. To deliver too little, too late in the computer world may not be a quick but is a quite certain comercial suicide.

Maybe for its own and our good, the 3 million of us should write to CBM and demand "3.0 and 68030 (or even 40!) as Standard Now!"

And add a postscript asking where the hell the Risc Amiga is too.

Antony Jacobson
Managing Editor

PRODUCTS USED TO HELP CREATE THIS MONTH'S *AUI*

Arnor's Protext 5.0, ASDG's Art Department Professional and Cygnus Ed, Canon's RC-260 Still Video Camera, DATEL's Action Display Cartridge, CCS's Dos-2-Dos, Checkmate's 1500, Electronic Art's Deluxe Paint III and IV, GVP's Series II FaaastROM Hard Disk Controller Card fitted with 8Mb SIMM expansion memory and a 105Mb Quantum 11ms Hard Drive, Hisoft's Devpac, Innovatronics CanDo, Microsystem's Scribble!, Newtek's DigiView Gold 4.0, Supra's 500XP Hard Disk Drive Controller Card, Nordic's Power Cartridge, Oxxi's SpectraColor, Precision's Superbase Professional 4, Real 3D, Nik William's PictureWare, JVC GR-S505 Camcorder, GST Gold SP, Professional Page 2.1, 32 Bit Ram from First Choice Computers

CREDITS
Managing Editor and Publishing Director (AUI): Antony Jacobson ***Editorial Coordinator:*** Pat Kelly ***Editorial Assistant:*** Gary Fenton CONTRIBUTORS: Janet Bickerstaff, Ashley Cotter-Cairns, Alan C. Cranliegh, Andy Eskelson, Gwynne Harper, John Kennedy, Peter Lee, Barry McCarthy, Anthony Mael, Andy Moss, Mike Nelson, Paul Overaa, Zach Skinner, Norman Stone,Bud Vennos, John Walker, Martin Witton, ***Designer:*** Gary Hyde ***Original Design Concept:*** *Graham Baldock* ***Group Advertisement Manager:***Lynda Elliot ***Advertisment Manager:*** Richard Vaughan ***Advertisment Sales Executive:*** Liz Edgar ***Production Controller:*** Jayne Penfold ***Production Executive:*** Michelle Evans

Publishing Director: Wendy Palmer
Deputy Managing Director: Ray Lewis
Managing Director: Peter Welham

© MAXWELL CONSUMER MAGAZINES

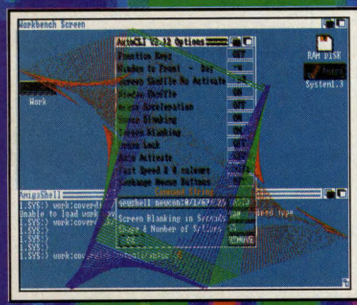
Editorial & Advertising: Panini House, 116-120 Goswell Road, London, EC1V 7QD Editorial Telephones: 071 490 extn. 26 071 490 7833 ext 210 Advertising Telephone: 071 490 7161 extn 19 Subscriptions Address: M.C.M. Subs Dept., Lazahold Ltd., PO Box 10, Roper Street, Pallion Ind. Estate, Sunderland SR4 6SN Subscriptions Telephone: 091 510 2290 Published by: Maxwell Consumer Magazines Distributed by: COMAG, Tavistock Road, West Drayton, Middx Typesetting & Origination by: Ford Graphics Ltd, Fordingbridge, Hants Covers printed by: Spottiswoode Ballantyne Printed + bound by: BPCC, Colchester Disk Duplication by: TIB plc, Bradford

Amiga User International – an independent magazine for Commodore computer users – is not connected in any way with Commodore Business Machines UK. It is published 12 times per year by Maxwell Consumer Magazines on the first Thursday of every month. The publishers do not accept any liability for any incorrect statement or errors contained in material from independent sources or authors which may be produced from time to time.

ISSN 0955 1077

AUI SUPERDISK N

AUI has forced over 20 programs and files onto the March Userdisk. There is something here for everyone, whichever Amiga you own. Furthermore, we have made it even easier to use and have doubled the disk pages in the magazine to explain, in simple language, how to use the programs on the disk.

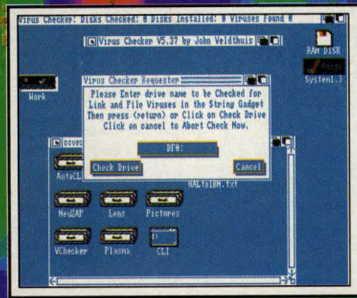


AutoCLI

A multi-function CLI, Shell, mouse, window and screen program which does the job of several programs! It has its own options menu and can be fully customised. AutoCLI can accelerate your mouse, draw colour patterns on your screen if you haven't touched the computer for a few minutes, flip between screens and windows, and will let you assign up to 20 function key commands! We're sure AutoCLI can make your life easier, and your Amiga's too!

Version 2.12 was written by Nic Wilson. There are enough instructions to get to know AutoCLI very well. You cannot run it from Workbench as it is best to run it via the Shell or CLI. To get instant help, type autocli followed by a space and a question mark. To use it, you will have to tell AutoCLI what functions you want to use. This is done by typing autocli, followed by your options which are letters and numbers. For example, typing autocli -frd -w -n -b -q2 -m -k -l -lfb -ltc50600 will tell AutoCLI several things: it will enable you to assign 20 function keys using RIGHT AMIGA as the qualifier for the second 10 function, the window and screen to front option will be enabled, pointer lock, auto window activation, mouse pointer blanking, mouse pointer acceleration at the 2nd rate, screen blanking after 10 minutes which will draw triangles with 50 lines in 4 colour fast mode.

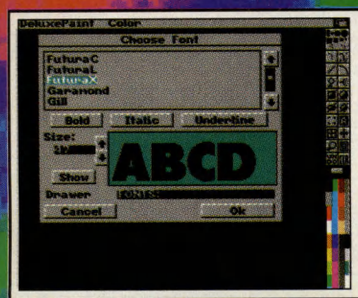
This may seem complicated but you should get the hang of it after reading the full documentation on the disk. It is a good idea to put AutoCLI in your startup-sequence.



Virus Checker 5.37

If you can remember last month, ***AUI*** gave you version 5.33 of John Valdthuis's fantastic virus killing program. We have now tracked down the very latest version that includes better virus detection and user friendly menus. Don't use the older versions that other magazines put on their coverdisks because new viruses are produced every week! Always use the latest version which ***AUI*** has supplied for you on this coverdisk. Remember, it is our commitment to you to bring you the latest and best virus busting software available. (And don't we all need it!)

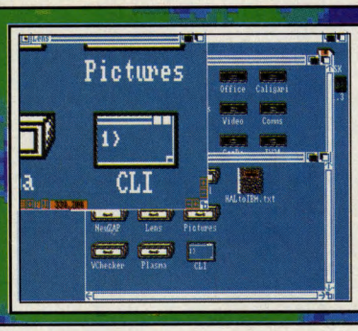
To get Virus Checker 5.37 up and running, open its drawer and double click on the icon. It will load and start running automatically. Please read the document on the disk to find out more about VC's further functions.



FontCacheX

Have you noticed that when you ask a program to list which fonts you have on your disk, it takes a lifetime to scan the disk first. FontCacheX will solve this for you by remembering which fonts are available. It takes up a tiny amount of precious memory so it won't effect any other programs. If you remember to use FontCacheX, then Steve Tibbett's FontCacheX will remember your fonts!

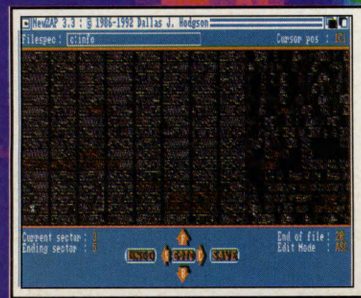
When you want to run FontCacheX, double click on its icon. You will not see anything happen because it is one of those programs that work "backstage". You can copy it to your paint, Workbench, or DTP disk and put it in your startup-sequence. FontCacheX will work on Workbench 1.3 and 2.x



MKS Lens

This isn't the first program to magnify your screen display, but it's the newest about! Michael Sinz's Lens is very fast and will work on nearly every Amiga screen opened. There are many levels of magnification and the window Lens is on is resizable. No there is no excuse why your granny can't read the screen!

To get magnifying, double click on its icon and it will pop up on the screen. Try moving your mouse pointer around and see what happens. There are some buttons on the window which will increase magnification levels, place cross hairs on the screen, toggle the fast mode, and jump to the next screen. Use the last function carefully and again, read the official documentation on the disk for full details of Lens.

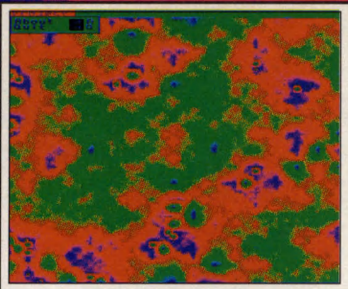


NewZAP 3.33

This is the latest 1992 version of Dallas J Hodgson's original 1986 file editor. What this allows you to do is edit any file you want. The file can be a game, a picture, a text file, or any other program you can think of. You can alter the hexadecimal values or the ASCII (English) parts of the file. When you have finished making your changes, NewZAP can save the file back in its original format. Examples for its use include putting your name on a high score table (serious cheating!), changing settings and values of a program, and general vandalism!

When you have loaded NewZAP, type in the name of the file in the Filespec box and press return. You must enter the full path name of the file such as DF0:directory/progname. Lastly, please be very careful when using NewZAP and always work on a copy of the file you want to edit. If you don't know what you are doing, the file may never work again. Please heed our friendly warning!

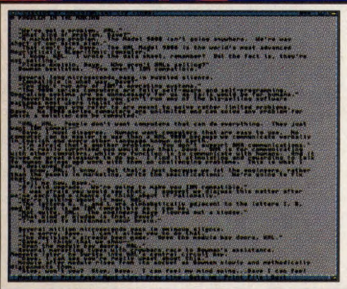
0.10



Plasma

Go phsychodelic and get spaced out with Roger Uzun's plasma generating program. After the computer has drawn the plasma you can cycle the colours (by pressing C on the keyboard). There are two version of the program. One is for ordinary Amigas with 68000 processors, such as the A500 and B2000, and a second version of the program is for faster machines with a 68020, 030 or 040 processor.

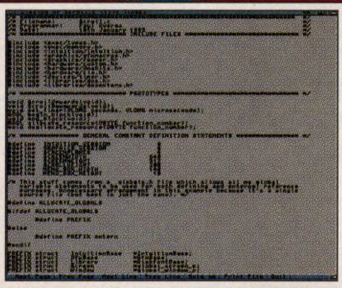
Just double click on the Plasma_32 icon to get the program going. Only run the Plasma_32_020 version if you have aforementioned machine. When you have had enough, use the menu to select QUIT. Budding programmers may like to dabble with the source code in the same directory.



HALtoIBM

This is a very well written and amusing little sketch created by an anonymous but talented person. It is about a computer called HAL 9000 (remember Space Odyssey 2001, 2010?) who is having a conversation with his creator. I won't give too much away because it will spoil the joke.

To read the file, just double click on its icon and it will load automatically. If the writer of the file is reading this, or you happen to know him, then please ask him to contact us at ***AUI***.



Scroll

In this drawer you will find all the files you need that accompany Paul Overaa's programming tutorial in this issue. If you haven't a clue how to program then you can still see the results by double clicking on the program called SCROLL. Use the menu to select QUIT. Paul has included the source code so you can change it to your heart's content. See this month's tutorial pages for more detail.

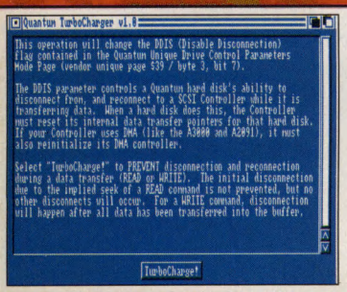
Pictures

Due to the lack of disk space left over, we only had enough room on the disk to fit in 1 picture. We think it was a good choice. To have a look at the picture, double click on its icon, and press the right mouse button when you have finished looking. Thanks to Peter Beal (please, no Eastenders jokes!) who took the photograph and to JCL who let us use the picture from their ColourPic slideshow.

LhA 1.10

In January, we gave you LhZ on the coverdisk. In February, we gave you a better version called LZ. Now, we are please to give you a brand new archiving program called LhA, version 1.10. This was written by Stefan Boberg and is a great deal faster, and more powerful, than any other archiving program available on the Amiga. It is fully compatible with LhZ and LZ.

There are over 100k of documents to read which have not been crunched. This means you can load then into any text viewer or word processor. The actual LhA program is in the C directory of the Userdisk, not in the LhA directory. We have used LhA to archive half of this month's programs. You can find out how to unarchive them later on.



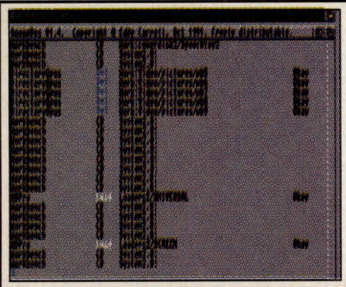
TurboQuantum

Although not many people have hard drives, the majority who do have Quantum drives. This "hack" will make your Quantum hard drive faster without having to take a screwdriver to it! It comes in the form of a program written by Ben Fuller. TurboQuantum scans your SCSI connections to see if a Quantum drive is attached, and if one is, it will ask you if you want to turbo charge it.

To run TurboQuantum, double click on its icon and follow the on screen prompts. Once you have turbo charged the drive, you probably won't have to do it every time you turn your Amiga on. The drive should remember the settings. Hard disks that have a Quantum drive include GVP's Impact Series II, Commodore's A3000, and a few other makes. I have used TurboQuantum for the past 2 weeks with no problems whatsoever, but neither ***AUI***, nor the author, can take responsibility should something go wrong.

AUI SUPERDISK No. 10

AUI SUPERDISK No. 10



SnoopDos

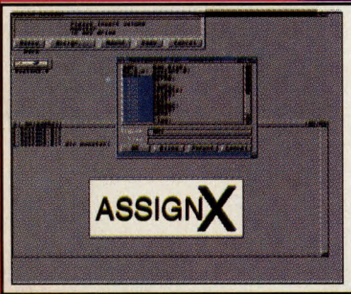
Have you ever wondered why a program won't load because it is looking for a file it can't find? SnoopDos takes the mystery out of these problems by letting you know exactly what's going on. It opens a small window and tells you which program is looking for which file. SnoopDos has other uses too that you will come across when you need them.

To run Eddy Carroll's SnoopDos, you must summon a CLI or Shell window and type its name, snoopdos. If you are running it from the coverdisk then you must specify its path name too which is utils2:snoopdos/snoopdos. If you read the documentation you can find out how to gain full control over SnoopDos.

RomSwitch

RomSwitch is a DIY hardware project which tell you how to make your very own Kickstart 1.3 and 2.x ROM selector. This means you can flick a switch to change from 1.3 to 2.x. Instructions and a diagram are included but only attempt this if you are confident enough to handle it.

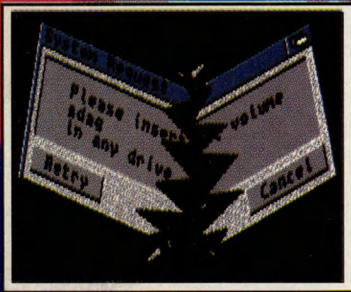
You need will a few listed items to build the switch including both a 1.3 and a 2 ROM (which is now available). Both ***AUI*** and the designer of RomSwitch, Darren Ewaniuk, do not take responsibility for any damage or effect it may have on your computer. Please take care when constructing your RomSwitch.



AssignX

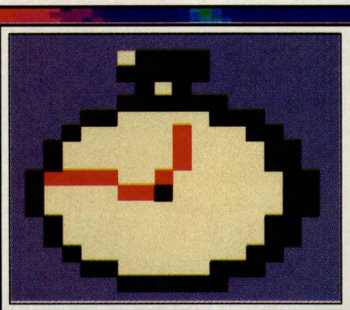
Don't you get annoyed when a PLEASE INSERT VOLUME... requester appears because you have not specified a valid name. If you want to cancel the requester, you have to click a few times on CANCEL for it to go away. Steve Tibbett saves your frustration with AssignX. When you run it, or have put it in your startup-sequence, it will present you with a multi-option requester as opposed to the regulation Commodore one.

Options include; ASSIGN - this will pop up another requester so you can click on the new name of the volume, DENY - this simply cancels the requester for good without it re-appearing, MOUNT - this will mount the volume as a device automatically. Please not that AssignX ONLY works under Workbench 2, NOT 1.3.



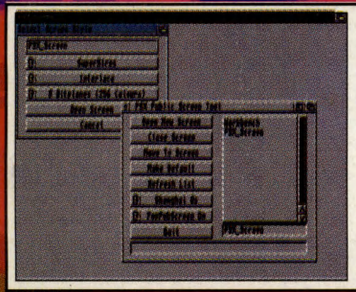
NoReq

Another big idea in the form of a small program by Steve Tibbett for Workbench 2 users ONLY. NoReq will no automatically cancel all requesters and reboots the computer should it suffer from a software failure. In short, it's ideal for BBS SysOps.



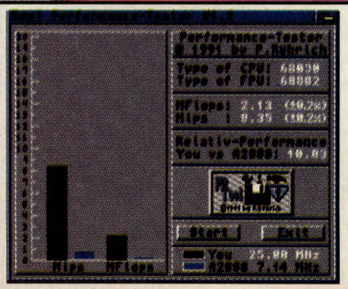
PointerX

Continuing with his new X series of programs for Workbench 2 users, Steve Tibbett has created a really nice but useless Workbench hack. PointerX will make the hands on the Workbench 2 busy clock spin round. There are two hands, the hour and the minute hand. These spin round very quickly and liven up the pointer considerably. Nice one, Steve.



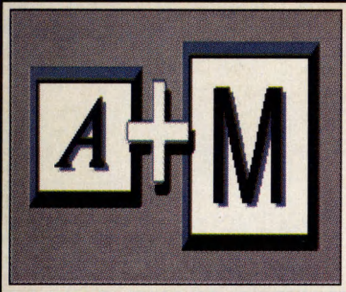
PSX

Public ScreenX is much like ScreenX, but PSX has been written by Steve Tibbett especially for Workbench 2. It will not work on Workbench 1.3. PSX will allow you to create public screen for other programs. It also lets you move PSX's menu from one screen to another and screens back and forth. It may not be of use to all Workbench 2 users, but it may become handy at some point.



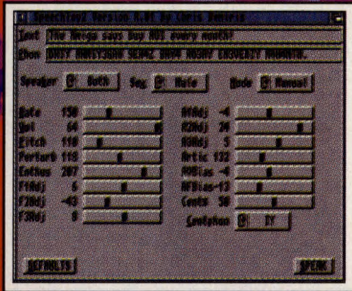
Mips

How many of you have an accelerated Amiga and can speak German? Not many, huh? This is a smart program that will find out exactly how fast your Amiga is in MIPS and MFLOPS. It's very accurate but the instructions are all in German. However, there are only 2 buttons; start and quit. Please note that you must have an accelerator card (or an A3000) in your Amiga for the program to work, else it crashes.



WindX

WindX is a small commodity program written by who else but Steve "X" Tibbett. Like the other X programs on the disk, WindX will only work under Workbench 2. Normally, when you flip from one screen to the other using LEFT AMIGA and M, the Amiga will not activate the next screen for you, yet alone remember which window was activated last time you visited that screen. WindX takes the pain out of clicking in the window by using some clever coding. Simply double click on the WindX icon to activate it.



SpeechToy2

This is the latest version, for Workbench 2 users only, of the Amiga speech program written by Chris Demiris. SpeechToy2 lets you take advantage of Workbench 2's superior speech synthesis. You can control the voice setting by using the sliders and buttons. This version includes the ability to give the voice an accent!

SpeechToy2 cannot be run from the disk without copying it onto your Workbench disk disk. Alternatively, boot from your Workbench 2.0 disk and then load it from the *AUI* Userdisk.

Workbench 2.0 Only Programs

Six of the programs on the disk are for Workbench 2 users only. If you have 1.3 then please do not delete these programs because they will be extremely useful should you upgrade your Amiga to the 2.0 ROM. The Workbench 2 only programs are PointerX, WindX, PSX, AssignX, NoReq, and SpeechToy2. These may crash if you try to load them under 1.3.

Copying Programs To Your Workbench Disk

Your Workbench disk has very little space free so you may have to delete unwanted programs to make room. Be careful which files you delete and always use a copy of the Workbench disk. Files can be copied by dragging the icons across from the Userdisk or by using a Shell. Please read all of the documents on the disk to find out if any other files are needed to run the program you want to copy across.

Burning Chrome BBS

Thanks to Simon Gardner who helped us in collecting these wonderful PDand shareware programs. Simon runs his own Bulletin Board called Burning Chrome. If you have a modem and you want to contact him, or browse through the available software, then the BBS number is 0428 727060 (19.2K HST-DS V42bis). This is not a voice number, it's for modems only.

HOW TO CREATE YOUR SECOND *AUI* USERDISK...

This month it is even easier to create your second disk full of utilities. Because we could not fit all of the programs onto one disk, we had to archive half of them into a single file. To unarchive these programs, follow these simple instructions to the letter (providing there are no printer's errors!)

Firstly, make a copy of this month's Userdisk using Workbench or any other copying program you regularly use. If you don't know how to copy a disk then please refer to the manual which came with your Amiga.

When you have made a copy of the disk, rename the copy to UTILS2. Please don't use the original disk to do this in case you make a mistake later on. Always work with a backup copy. Newcomers to the Amiga should read their manual on how to rename a disk.

Okay. You should now have an identical copy of this month's coverdisk which you renamed to "UTILS2" (without the quotes and spelt "u t i l s" followed by the number two.) Next, turn off the computer for 10 seconds just to clear the memory, totally. Write enable the disk by moving the black tab on the disk to close the hole. Now turn your Amiga back on and insert the disk UTILS2 into your internal drive (df0:). Let the disk boot up as before and wait for it to load Workbench.

When Workbench has loaded, open up the disk icon and then double click on the CLI icon. When the CLI window appears, type in the following:

execute theeditor (PRESS RETURN)

When you press return, the computer will start the whole job for you, automatically. It will keep you informed of what of is happening but you must stay on your toes. At some point the computer will ask you if it should overwrite the file ".info". Your options will be Y/N/Q. You must press the Y key on the keyboard for YES. The computer will then continue. You will be told when the process is complete. Then, all you do is reset the Amiga with the disk still in df0: Easy!

AUI SUPERDISK No. 10

RAINBOW COLLECTION	HOLLYWOOD COLLECTION	WHEELS OF FIRE COMPILATION	WORLD CUP COMPILATION	BEAST 2 + SHIRT	AWESOME + SHIRT	POWER UP COMP'	JIMMY WHITE	STEVE DAVIS
9.99	9.99	7.99	7.99	12.99	14.99	9.99	13.99	7.99

F16 FALCON	THUNDERHAWK	HARD DRIVIN 2	SWIV	KICK OFF + EXTRA TIME	KICK OFF 2	KIND WORDS 2	LSR SUIT LARRY 3	LEMMINGS	MEGATRAVELLER 1	TV BASKETBALL
11.99	9.99	9.99	9.99	4.49	7.99	24.99	12.99	13.99	11.99	11.99

MIDWINTER	PLAYER MANAGER	ELITE	POWERWORKS	PRINCE OF PERSIA	SIM AND POPULOUS	SCRABBLE DELUXE	COLOSSUS X CHESS	TURRICAN 2	TURRICAN	FUN SCHOOL 4
11.99	7.99	9.99	44.99	9.99	16.99	7.99	7.99	8.49	6.99	15.99

WINGS	WORDWORTH	SHADOW OF THE BEAST	F19 STEALTH	DELUXE PAINT 3	INDY JONES ADV	TEENAGE QUEEN	AMOS	SPEEDBALL 2	I.C.F.T. DESERT	JACK NICKLAUS
11.49	79.99	6.99	12.99	29.99	8.99	7.99	32.99	10.99	9.99	6.99

Amiga Software --- Games marked (NOP) will not work on the AMIGA A500 PLUS.

Latest Amigas include Kickstart 2 and have 1 meg RAM built in. Games marked (NOP) are not compatible with the new A500 PLUS machines.

2 HOT 2 HANDLE (OFF ROAD RACER, TOTAL RECAL, SHADOW WARRIOR) ...19.49
3D CONSTRUCTION KIT ...32.99
3D POOL ...7.99
4 WHEEL DRIVE (LOTUS ESPRIT TURBO, TEAM SUZUKI, TOYOTA CELICA, COMBO RACER) ...19.49
4D SPORTS BOXING ...16.99
4D SPORTS DRIVING ...16.99
A10 TANK KILLER (1 MEG) ...22.49
A320 AIR-BUS ...20.49
ACTION MASTERS (F16 COMBAT PILOT, ITALY 1990, DOUBLE DRAGON 2, TURBO OUTRUN, WELLTRIS) ...18.99
AD&D DUNGEON MASTER ASSISTANT VOL2 (SSI) ...7.99
ADVANTAGE TENNIS ...16.99
AFTERBURNER ...7.99
AGONY ...16.99
AIR SEA SUPREMACY (GUNSHIP, SILENT SERVICE, P47, WINGS, CARRIER COMMAND) ...19.99
AIR SUPPORT ...16.99
ALIEN BREED (1 MEG) ...16.49
ALIEN STORM ...16.99
AMNIOS ...16.99
AMOS (GAMES CREATOR) ...32.99
AMOS 3D (NEEDS AMOS) ...22.99
AMOS COMPILER (NEEDS AMOS) 19.99
ANOTHER WORLD ...16.99
ARKANOID 2 ...7.99
ARMALYTE ...7.99
ARMOUR-GEDDON ...16.99
AWESOME WITH SHIRT ...14.99
BAAL ...6.99
BARBARIAN 2 (PSYGNOSIS) ...17.49
BARD'S TRILOGY ...22.49
BATTLE COMMAND ...15.99
BATTLE ISLE (NOP) ...19.99
BATTLE OF BRITAIN ...19.99
BATTLE SQUADRON ...7.99
BATTLECHESS 2 ...17.49
BETRAYAL ...19.49
BIG RUN ...16.99
BIRDS OF PREY (1 MEG) ...19.49
BLACK CRYPT ...16.99
BLOOD MONEY ...6.99
BLOODWYCH ...7.99
BLUE MAX ...19.99
BLUES BROTHERS ...16.99
BONANZA BROS ...16.99
BREACH 2 (ENHANCED) ...17.99
BUDOKAN ...8.99
CADAVER ...9.49
CADAVER LEVELS - THE PAY OFF 11.99
CAPTAIN PLANET ...16.99
CAPTIVE ...16.99
CARRIER COMMAND ...7.99
CASTLES (1 MEG) ...19.49
CELTIC LEGENDS ...19.99
CENTURION DEFENDER OF ROME ...16.99
CHAMPIONS (MANCHESTER UTD, BOXING MANAGER, J.KHANN SQUASH) 12.49
CHAMPIONS OF KRYNN (1 MEG) 19.99
CHART ATTACK (LOTUS ESPRIT, GHOULS+GHOSTS, JAMES POND, VENUS THE FLY TRAP) (NOP) ...19.49
CHIPS CHALLENGE ...13.99
CHRONOQUEST 2 ...7.99
CHUCK ROCK ...15.99
CHUCKIE EGG ...8.99
CHUCKIE EGG 2 ...8.99
CLOUD KINGDOMS ...3.99
COLOSSUS X CHESS ...7.99
CORPORATION + MISSION ...11.99
CORRUPTION (M/SCROLLS) ...3.99
COVERT ACTION ...22.49
CRUISE FOR A CORPSE ...19.99
CYBERCON 3 (NOP) ...17.49
DEATH KNIGHTS OF KRYNN (1 MEG) (SSI) ...19.99
DEFENDER OF THE CROWN ...7.99
DEJA VU 2 ...9.99
DELUXE MUSIC CONSTR' SET ...49.99
DELUXE PAINT 3 (WITH ANIMATION) ...29.99
DELUXE PAINT 4 (1 MEG) (HAM MODE & ANIMATION) ...57.99
DEUTEROS (NOP) ...16.99
DEVPAC V2 (ASSEMBLER) ...54.99
DISNEY ANIMATION STUDIO ...64.99
DOUBLE DOUBLE BILL (NOP) ...22.99
DOUBLE DRAGON 3 ...16.99
DRAGON BREED ...7.99
DRAGON WARS ...17.49
DRAKKHEN ...9.99
DYNASTY WARS (NOP) ...2.99
E-MOTION ...2.99
ELF ...16.49
ELITE ...9.99
ELVIRA 2 - JAWS OF CERBERUS (1 MEG) ...22.99
EPIC ...16.99
EXILE ...15.99
EYE OF THE BEHOLDER (1 MEG) 19.99
F15 STRIKE EAGLE 2 (1 MEG) ...21.99
F16 FALCON (NOP) ...11.99
F16 FALCON PLUS MISSIONS 1&2 (NOP) ...22.99
F18 INTERCEPTOR ...8.49
F19 STEALTH FIGHTER ...12.99
F29 RETALIATOR ...16.99
FACE OFF (NOP) ...16.99
FERRARI FORMULA 1 ...8.99
FINAL BLOW (NOP) ...16.99
FINAL FIGHT (NOP) ...16.99
FIRST SAMURI ...16.99
FISH! (M/SCROLLS) ...3.99
FISTS OF FURY (DYNAMITE DUX, NINJA WARRIORS, SHINOBI, DOUBLE DRAGON 2) (NOP) ...19.49
FLAMES OF FREEDOM (MIDWINTER 2) ...21.99
FLIGHT OF THE INTRUDER ...21.99
FORGOTTEN WORLDS ...7.99
FORMULA 1 GRAND PRIX ...22.99
FULL CONTACT ...9.99
FUN SCHOOL 2 (2-6) ...13.99
FUN SCHOOL 2 (6-8) ...13.99
FUN SCHOOL 2 (8+) ...13.99
FUN SCHOOL 3 (2-5) ...15.99
FUN SCHOOL 3 (5-7) ...15.99
FUN SCHOOL 3 (7+) ...15.99
FUN SCHOOL 4 (2-5) ...15.99
FUN SCHOOL 4 (5-7) ...15.99
FUN SCHOOL 4 (7+) ...15.99
GATEWAY TO THE SAVAGE FRONTIER ...19.99
GAUNTLET 2 ...7.99
GAUNTLET 3 ...16.99
GFA BASIC V3.0 COMPILER ...27.99
GFA BASIC V3.0 INTERPRETER 39.99
GHENGHIS KHANN ...20.99
GODS ...16.99
GOLDEN AXE ...16.99
GOLF WORLD CLASS LEADERBOARD ...7.99
GRAHAM GOOCH CRICKET ...17.99
GRAVITY ...4.99
GUY SPY ...19.49
HARD DRIVIN' 2 (NOP) ...9.99
HARPOON ...16.49
HARPOON V1.21 ...21.49
HEAD OVER HEELS ...6.99
HEART OF CHINA (1 MEG) ...22.99
HEIMDALL (1 MEG) ...18.99
HEROQUEST (GREMLIN) ...16.99
HEROQUEST EXPANSION - RETURN OF THE WITCH LORD 10.99
HILL STREET BLUES ...15.49
HITCH HIKERS GUIDE ...7.99
HOLLYWOOD COLLECTION (ROBOCOP, GHOSTBUSTERS 2, INDIANA JONES, BATMAN THE MOVIE) ...9.99
HOME ACCOUNTS 2 ...39.99
HOME ALONE ...16.49
HUDSON HAWK ...16.99
HUNTER ...19.49
HYBRIS ...2.99
IAN BOTHAMS CRICKET ...19.49
IK+ ...7.99
INDIANA JONES ADVENTURE ...8.99
INDY HEAT ...16.99
INFESTATION ...6.99
INTERCEPTER - RENEGADE LEGION (SSI) ...6.99
INTERNATIONAL CHAMPIONSHIP ATHLETICS ...15.49
INTERNATIONAL SPORTS CHALLENGE ...19.49
INTERPHASE ...2.99
IT CAME FROM THE DESERT (1 MEG) ...9.99
JACK NICKLAUS GOLF ...6.99
JAMES POND 2 - ROBOCOD ...16.99
JET SET WILLY ...8.99
JIMMY WHITES SNOOKER ...13.99
JINXTER (M/SCROLLS) ...3.99
JOHN MADDENS U.S. FOOTBALL 17.49
JUDGE DREDD ...6.99
KICK OFF + EXTRA TIME DISK ...4.49
KICK OFF 2 (1 MEG VERSION) ...8.99
KICK OFF 2 ...7.99
K/OFF 2 FINAL WHISTLE ...7.99
K/OFF 2 GIANTS OF EUROPE ...7.99
K/OFF 2 RETURN TO EUROPE ...7.99
K/OFF 2 WINNING TACTICS ...7.99
KID GLOVES 2 ...16.99
KIDSTYPE JUNIOR WORD PROCESSOR ...19.99
KIND WORDS 2.0 (WORD PROCESSOR) ...24.99
KING OF CHICAGO ...7.99
KINGS QUEST 5 (1 MEG) ...25.49
KLAX ...6.99
KNIGHTMARE ...19.49
KNIGHTS OF THE SKY (1 MEG) 22.99
LEANDER ...16.99
LEATHER GODDESSES ...7.99
LEISURE SUIT LARRY 2 ...12.99
LEISURE SUIT LARRY 3 (1 MEG) 12.99
LEISURE SUIT LARRY 5 (1 MEG) 25.99
LEMMINGS ...13.99
LEMMINGS DISK - OH NO! ...13.99
LIFE AND DEATH ...16.99
LOMBARD RAC RALLY ...7.99
LORD OF THE RINGS ...19.49
LOTUS TURBO CHALLENGE 2 ...16.99
MAGIC POCKETS ...16.99
MAGNETIC SCROLLS VOL.1 (GUILD OF THIEVES, FISH, CORRUPTION) ...19.99
MANCHESTER UNITED EUROPE 15.49
MANIC MINER ...8.99
MEGA LO MANIA ...19.99
MEGA TWINS ...16.99
MEGATRAVELLER 1 (1 MEG) ...11.99
MENACE (NOP) ...6.99
MERCENARY 3 ...15.99
MERCHANT COLONY ...18.49
MICROPROSE 3D GOLF ...22.99
MICROPROSE SOCCER ...3.99
MIDWINTER ...11.99
MIG 29 FULCRUM (NOP) ...15.99
MIG 29 SUPER FULCRUM (NOP) 25.99
MIGHT & MAGIC 2 ...6.99
MONOPOLY ...15.49
MONSTER PACK 2 (KILLING GAME SHOW, AWESOME, BEAST 2) ...16.99
MONTY PYTHONS FLYING CIRCUS ...6.49
MOONSHINE RACERS ...16.99
MOONSTONE ...19.49
MURDER ...4.99
MYSTICAL ...2.99
NEBULUS 2 ...16.99
NEVER MIND ...3.99
NITRO ...6.99
NUCLEAR WAR ...6.99
OPERATION STEALTH ...16.99
OPERATION WOLF ...7.99
ORK ...16.99
OUTRUN EUROPA (NOP) ...16.99
PAPERBOY 2 ...16.99
PAWN (M/SCROLLS) ...7.99
PEN PAL WORD PROCESSOR ...64.99
PGA TOUR GOLF ...16.99
PGA TOUR GOLF COURSE DISK 10.99
PIRATES (NOP) ...16.99
PITFIGHTER ...16.49
PLAYER MANAGER ...7.99
POOL OF RADIANCE (1 MEG) ...19.99
POOLS OF DARKNESS (1 MEG) 19.99
POPULOUS & SIM CITY ...16.99
POPULOUS 2 ...19.99
POWER UP (CHASE H.Q, TURRICAN, X-OUT, ALTERED BEAST, RAINBOW ISLANDS) (NOP) ...9.99
POWERDRIFT (NOP) ...3.99
POWERMONGER ...19.49
POWERMONGER WW1 DATA ...11.99
POWERWORKS (MAXIPLAN PLUS SPREADSHEET, KIND WORDS 2 W/PROCESSOR, INFOFILE DATABASE) ...44.99
PRINCE OF PERSIA (1 MEG) ...9.99
PRO TENNIS TOUR 2 ...16.99
PURPLE SATURN DAY ...2.99
QUESTRON 2 (SSI) ...5.99
R-TYPE ...7.99
R-TYPE 2 ...16.99
RACE DRIVIN ...16.49
RAILROAD TYCOON (1 MEG) ...21.99
RAINBOW COLLECTION (BUBBLE BOBBLE, RAINBOW ISLANDS, N/ZEALAND STORY) ...9.99
RBI BASEBALL 2 (NOP) ...19.49
REALMS ...19.99
RED BARON (1 MEG) ...22.99
RICK DANGEROUS ...6.99
RISE OF THE DRAGON (1 MEG) ...25.49
ROBIN HOOD ...16.99
ROBOCOP 2 ...16.99
ROBOCOP 3 ...16.99
ROBOZONE ...16.99
ROCKET RANGER ...7.99
RODLAND ...16.99
ROLLING RONNY ...16.49
RORKE'S DRIFT ...15.49
RUGBY WORLD CUP ...15.99
SCRABBLE DE LUXE ...7.99
SECRET OF MONKEY ISLAND (1 MEG) ...16.99
SECRET OF MONKEY ISLAND 2 ...19.99
SECRET OF THE SILVER BLADE (1 MEG) ...19.99
SHADOW DANCER ...16.99
SHADOW OF THE BEAST ...6.99
SHADOW OF THE BEAST 2 WITH SHIRT ...12.99
SHADOW SORCERER (1 MEG) 16.99
SHADOW WARRIORS ...16.99
SHINOBI ...6.99
SILENT SERVICE 2 (1 MEG) (NOP) 21.99
SILKWORM (NOP) ...6.99
SIM CITY & POPULOUS ...16.99
SIM CITY ANCIENT CITIES ...11.99
SIM CITY FUTURE WORLDS ...11.99
SIM CITY TERRAIN EDITOR ...10.99
SIMULATORS PACK (688 ATTACK SUB, INDY 500, F18 INTERCEPTOR) ...21.99
SINBAD ...7.99
SKYFOX (NOP) ...3.99
SMASH TV ...16.99
SPACE HARRIER 2 (NOP) ...3.99
SPACE QUEST 4 (1 MEG) ...25.49
SPECIAL FORCES ...22.49
SPEEDBALL ...7.99
SPEEDBALL 2 ...10.99
SPELLBOUND ...5.99
SPOT ...13.49
STEVE DAVIS SNOOKER ...7.99
SUPER CARS (GBH) ...6.99
SUPER CARS 2 (NOP) ...16.49
SUPER HANG ON ...7.99
SUPER LEAGUE MANAGER ...15.99
SUPER SPACE INVADERS ...16.49
SUPREMACY ...19.49
SUSPICIOUS CARGO ...16.99
SWITCHBLADE 2 ...16.99
SWIV (NOP) ...9.99
SWORD OF SODAN ...5.99
T.N.T (APB, HARD DRIVIN', TOOBIN, DRAGON SPIRIT, XYBOTS) (NOP) 7.99
T.N.T 2 (HYDRA, SKULL & CROSSBONE, BADLANDS, STUN RUNNER, HARD DRIVIN 2) ...16.49
TEENAGE QUEEN (STRIP POKER) (NOP) ...7.99
TERMINATOR 2 ...16.99
TETRIS ...13.99
THE GAMES SUMMER EDITION ...6.99
THE GODFATHER (1 MEG) ...19.99
THE SIMPSONS ...16.99
THUNDERHAWK ...9.99
TIP OFF ...15.99
TOKI ...16.99
TOYOTA CELICA GT RALLY ...16.49
TRIAD VOL 2 (MENACE, BAAL, TETRIS) (NOP) 7.99
TURBO CUP (NOP) ...3.99
TURRICAN ...6.99
TURRICAN 2 ...8.49
TURTLES 2 ...19.49
TV SPORTS FOOTBALL (NOP) ...7.99
TV SPORTS BASEBALL ...19.49
TV SPORTS BASKETBALL ...11.99
ULTIMA 5 ...11.49
ULTIMA 6 (1 MEG) ...20.99
ULTIMATE RIDE ...17.49
UMS 2 (1 MEG) ...19.49
UTOPIA ...19.49
VENGANCE OF EXCALIBUR ...19.49
VIRTUAL REALITY VOL1 (MIDWINTER, STUNT CAR RACER, INT SOCCER CHALL, CARRIER COMMAND, STARGLIDER 2) (NOP) 19.99
VIRUS (NOP) ...5.99
VIZ ...13.99
VROOM ...16.99
WAR ZONE ...13.99
WARHEAD ...8.99
WARLORDS (1 MEG) ...16.99
WATERLOO ...7.99
WELLTRIS ...7.99
WHEELS OF FIRE (NOP) (HARD DRIVIN, POWERDRIFT, CHASE H.Q, TURBO OUTRUN) ...7.99
WILLY BEAMISH ...22.99
WINGS (1 MEG) ...11.49
WOLFCHILD ...14.49
WONDERLAND (1 MEG) ...19.49
WORDWORTH WORD PROCESSOR (1 MEG) ...79.99
WORLD CLASS RUGBY ...15.99
WORLD CUP COMPILATION (TRACKSUIT MANAGER, INT SOCCER, KICK OFF) ...7.99
WWF WRESTLING ...16.99
XENOMORPH ...6.99
XENON 2, MEGABLAST (NOP) ...7.99
ZAK MAKRAKEN ...12.99

COMPETITION PRO 5000 (COLOURS MAY VARY) **7.99**

POWERPLAY CRUISER **10.99**

COMPETITION PRO EXTRA JOYSTICK (CLEAR BASE) WITH AUTOFIRE AND SLOW MOTION **9.99**

CHEETAH BUG **13.99**

QUICKJOY JET FIGHTER **12.99**

QUICKSHOT111A TURBO 2 **9.99**

STARFIGHTER REMOTE WITH TWO INFRA-RED JOYPADS **29.99**

QUICKSHOT PYTHON **9.99**

QUICKSHOT138F MAVERICK 1 **12.99**

QUICKJOY MEGASTAR **19.99**

QUICKJOY TOP STAR **19.99**

NAKSHA MOUSE WITH OPERATION STEALTH **24.99**

SQUIK MOUSE **15.99**

FOUR PLAYER AMIGA/ATARI ST JOYSTICK ADAPTOR (FOR KICK OFF 2, LEATHERNECKS, GAUNTLET 2 & TV SPORTS BASKETBALL) ...7.99

ROBOSHIFT INTERFACE FOR AMIGA OR ST (PLUGS MOUSE AND JOYSTICK INTO ONE PORT) ...14.99

0279 600204

No obligation to buy
FREE CATALOGUE
0279 600204

Special Reserve
Games Club

Game Gear
99.99

FREE Mains Adaptor and FREE Special Reserve Membership

BASEBALL	24.99	LEADER BOARD	19.99	SPIDERMAN	24.99
COLUMNS	16.99	MICKEY MOUSE	19.99	SUPER KICK OFF	24.99
DONALD DUCK	19.99	NINJA GAIDEN	19.99	SUPER MONACO GP	16.99
DRAGON CRYSTAL	19.99	OUTRUN	19.99	WONDER BOY	16.99
FACTORY PANIC	19.99	PENGO	16.99	WOODY POP	16.99
FANTASY ZONE	24.99	PSYCHIC WORLD	16.99	**GEAR TO GEAR CABLE**	
FROGGER	16.99	PUT & PUTTER GOLF	16.99	**(LINKS TWO GAME GEARS)**	**5.99**
G-LOC	19.99	SHINOBI	19.99	**MAINS ADAPTOR**	**12.99**
GOLDEN AXE (AXE BATTLER)	24.99	SOLITAIR POKER	19.99	**MASTER GEAR CONVERTER**	
HALLEY WARS	24.99	SONIC THE HEDGEHOG	24.99	**(ENABLES USE OF MASTER**	
JOE MONTANA FOOTBALL	19.99	SPACE HARRIER	19.99	**SYSTEM GAMES)**	**24.99**

Gameboy, Tetris, batteries, headphones and two player lead
FREE Special Reserve Membership
FREE Holsters, Belt and cartridge pouch.
69.99

Buy a Gameboy AND any game and we'll give you a *FREE* Gamelight as well.
(i.e. everything in the picture above for about £90) (Please list all *FREE* items on the order form)

ALLEYWAY	19.99	GREMLINS 2	24.49	SIMPSONS	24.49
BALLOON KID	19.99	HYPERLODE RUNNER	19.49	SKATE OR DIE	19.99
BATMAN	24.49	KICK OFF	23.99	SOLAR STRIKER	19.99
BOULDER DASH	24.49	KUNG FU MASTER	24.49	SPIDERMAN	19.99
BOXXLE	24.49	KWIRK	19.99	SUPER MARIO LAND	19.99
BUBBLE GHOST	19.99	MOTOR CROSS MANIACS	19.49	SUPER RC PRO-AM	24.49
BUGS BUNNY	19.99	NAVY SEALS	19.99	TEENAGE HERO TURTLES	24.49
BURAI FIGHTER DELUXE	19.99	NEMESIS	19.99	TENNIS	19.49
CASTLEVANIA	24.49	NINTENDO WORLD CUP	19.99	WIZARDS AND WARRIORS	19.99
DOUBLE DRAGON	19.99	OTHELLO	19.99	WWF SUPERSTARS	24.49
DR. MARIO	19.99	PAPERBOY	19.99		
DUCK TALES	24.49	PRINCESS BLOBETTE	24.49	**AMPLIFIER (STEREO)**	**13.99**
DYNA BLASTER	24.49	QIX	19.99	**GAMELIGHT**	**9.99**
FORMULA 1 RACE (WITH		R-TYPE	24.49	**MAGNIFIER**	**8.99**
FOUR PLAYER ADAPTOR)	27.99	RADAR MISSION	19.99	**MAINS ADAPTOR**	**12.99**
FORTIFIED ZONE	19.99	REVENGE OF THE GATOR	19.99	**NUBY ATTACHE CASE**	**16.99**
GARGOYLES QUEST	19.99	ROBOCOP	24.49	**NUBY CARTRIDGE CASE**	**9.99**
GHOSTBUSTERS 2	19.99	SAMURAI ADVENTURE	24.49	**HOLSTERS, BELT AND**	
GOLF	19.49	SIDE POCKET	19.99	**CARTRIDGE HOLDER**	**9.99**

Atari Lynx 2
84.99
FREE Mains Adaptor
FREE Special Reserve Membership

APB	23.99	PACLAND	23.99
AWESOME GOLF	23.99	PAPERBOY	23.99
BASEBALL HEROES	23.99	PITFIGHTER	23.99
BASKETBRAWL	23.99	QIX	23.49
BILL AND TEDS		RAMPAGE	23.99
EXCELLENT ADV	23.99	ROBO SQUASH	23.99
BLOCK OUT	23.99	ROBOTRON 2084	23.99
CHECKERED FLAG	23.99	S.T.U.N RUNNER	23.99
CHIPS CHALLENGE	21.99	SCRAPYARD DOG	26.99
CRYSTAL MINES 2	23.99	SHANGHAI	23.99
DIRTY LARRY	23.99	SLIMEWORLD	23.99
ELECTRO COP	23.99	STRIDER 2	23.99
GRID RUNNER	23.99	TOKI	23.99
HARD DRIVIN'	23.99	TOURNAMENT	
HOCKEY	23.99	CYBERBALL	23.99
HYDRA	23.99	TURBO SUB	26.99
HYPERDROME	23.99	ULTIMATE CHESS	27.99
ISHIDO	23.99	VIKING CHILD	23.99
KLAX	23.99	WARBIRDS	23.99
LYNX CASINO	23.99	WORLD CUP SOCCER	23.99
MS PACMAN	23.99	XENEPHOBE	23.99
NFL SUPER-BOWL	23.99	XYBOTS	23.99
NINJA GAIDEN	23.99	ZARLOR MERCENARY	23.99

CLEANING KIT FOR HAND-HELDS	**8.99**
COMLYNX MULTI-PLAYER CABLE FOR LYNX	**8.99**
CARRYBAG FOR LYNX	**11.99**
MAINS ADAPTOR	**12.99**
ATARI KIT CASE (SHOWN)	**16.99**

NRG colour magazine
Bi-monthly to members.
Don't miss it.

Biggest and Best.
Huge catalogue. Huge discounts.
Huge stocks. Huge staff.
Huge membership.
Biggest Value, Best Service
No obligation to buy

Free Colour Catalogue
Just phone our sales team on
0279 600204
Open to 8pm Weekdays and to 5pm Weekends

ANNUAL MEMBERSHIP
UK £6.00 EEC £8.00 WORLD £10.00
We only supply members but you can order as you join.

Win £200 to spend at Special Reserve
Members only. See catalogue for details.

£30 OFF

Amiga A500 PLUS 1 Meg Cartoon Pack
1 MEG RAM, LEMMINGS, THE SIMPSONS, CAPTAIN PLANET, DELUXE PAINT 3
FREE SPECIAL RESERVE MEMBERSHIP
369.99

229.99

Philips CM8833 Mk 2 Monitor
FREE MEMBERSHIP *FREE* MONITOR LEAD

GOLDSTAR
3.5" DS/DD
DISK with LABEL
69p each or
24.99 for 50

STOP PRESS
From April '92 our colour magazine NRG will double in size and will include £30.00 worth of money of coupons in every issue.
So you can save up to a further £180 per year off our already incredible prices.
NRG is included in the price of membership
JOIN NOW for best ever VALUE

INEVITABLY, SOME GAMES SHOWN MAY NOT YET BE RELEASED.
Inter-Mediates Ltd. Reg. Office: 2 South Block, The Maltings, Sawbridgeworth, Herts CM21 9PG.

CITIZEN 120D+
80 COLUMN, 9 PIN
144 CPS/25 NLQ
24 MTH WARRANTY
FREE MEMBERSHIP
FREE PRINTER LEAD
134.99

CITIZEN SWIFT 9 PRINTER, 80 COLUMN, 9 PIN, 213 CPS, 24 MTH WARRANTY, *FREE* COLOUR KIT, *FREE* PRINTER LEAD *FREE* SPECIAL RESERVE MEMBERSHIP **199.99**

CITIZEN 224 COLOUR PRINTER, 80 COLUMN, 24 PIN, 192CPS/64LQ, 24 MTH WARRANTY, *FREE* MEMBERSHIP, *FREE* PRINTER LEAD **249.99**
AUTO SHEET FEEDER FOR CITIZEN 224 ..... 79.99

RIBBON (COLOUR) FOR SWIFT 9 OR 224 ..... 15.99
RIBBON (BLACK) FOR SWIFT 224 ..... 6.99
RIBBON (BLACK) FOR SWIFT 9 OR 120D+ 6.99

A590 20 MEG HARD DISK FOR AMIGA (AUTOBOOT WITH KICKSTART, SOCKETS FOR 2 MEG OF RAM, SCSI INTERFACE FOR PERIPHERALS CONNECTION) 284.99

AMIGA TO SCART LEAD (GIVES MONITOR QUALITY ON TV WITH SCART/RGB INPUT) 9.99
CLEANING KIT FOR COMPUTERS (INCLUDES VACUUM) ... 19.99

3.5" DS DD GOLSTAR DISK WITH LABEL ..... 69p each
PACK OF 50 GOLSTAR 3.5" DS/DD DISK WITH LABELS 24.99
3.5" DISK HEAD CLEANER 4.99

DISK BOX 3.5" (10 CAPACITY) 1.99
DISK BOX 3.5" (100) DIVIDERS, LOCKABLE 9.99
DISK BOX 3.5" (40) LOCKABLE, DIVIDERS 7.99
DISK BOX 3.5" (80) LOCKABLE, DIVIDERS 8.99

DELUXE DISK BOX 3.5" (80), LOCKABLE, DIVIDERS
10.99

ROCTEC 3.5" EXTERNAL AMIGA DISK DRIVE
54.99

ROCTEC AMIGA 512K RAM EXPANSION WITH CLOCK 29.99
DUST COVER FOR 80 COLUMN PRINTER (CLEAR PVC) 5.99
DUST COVER FOR AMIGA (CLEAR PVC) 4.99
DUST COVER FOR MONITOR (CLEAR PVC) 5.49

AMIGA SOUND ENHANCER 34.99
TECNOPLUS MIDI CONNECTOR AND CABLES WITH MUSIC X JUNIOR 39.99

A501 (WITH BART) AMIGA 512K RAM EXPANSION TO 1 MEG GENUINE ITEM WITH CLOCK *FREE* BART SIMPSON GAME 49.99

COMMODORE CDTV, REMOTE CONTROL, WELCOME DISK, HUTCHINSONS ENCYCLOPEDIA AND LEMMINGS *FREE* MEMBERSHIP
469.99
FULL RANGE CD's FOR CDTV IN OUR CATALOGUE

£30 OFF

WE ONLY SUPPLY MEMBERS BUT YOU CAN ORDER AS YOU JOIN. THERE IS A SURCHARGE OF 50p PER GAME ON TELEPHONED ORDERS. (PLEASE PRINT IN BLOCK CAPITALS) **AUI 19**

Name _____
Address _____
_____
_____ Postcode _____
Telephone _____ Machine type _____
Enter membership number (if applicable) or Membership fee £6 UK, £8 EEC, £10 World
item _____
item _____
item _____
item _____
ALL PRICES INCLUDE UK POSTAGE & VAT £

Cheque/P.O./Access/Mastercard/Switch/Visa
Credit card expiry date _____ Switch Issue Number _____
Cheques payable to: **SPECIAL RESERVE**
P.O. BOX 847, HARLOW, CM21 9PH

Overseas Orders: EEC software orders - no extra charge
World software orders please add £1.00 per item.
Non-software items please add 10% EEC or 25% World.
Overseas orders must be paid by credit card.

10 MARKET PLACE
ST. ALBANS
HERTS AL3 5DG
TEL (0727) 56005/41396

Hobbyte

COMPUTING
ESTABLISHED 8 YEARS

THE GALLERY
ARNDALE CENTRE
LUTON, BEDS LU1 2PG
TEL (0582) 457195/411281

LATEST VERSIONS OF AMIGA 500, 1500 & 2000 IN STOCK

LATEST VERSIONS OF AMIGA 500, 1500 & 2000 IN STOCK

AMIGA STARTER PACK

LIMITED

Full Amiga 500 pack, WITHOUT Cartoon Classics, BUT WITH: 35 Programme Hobbyte PD Greats pack, including Virus Killers, the Best Star Trek and other top ten games, Arcade Classics, Board Classics, Best of the Utilities, Home pack including Word Processor/Spell Check, Spreadsheet, Database,

PLUS: JOYSTICK

1 MB AMIGA.....£325
2 MB AMIGA.....£375
With Philips 8833 Mk II Monitor + Leads.....£524

AMIGA GAMES PACKS

1MB OR 2 MB

CARTOON CLASSICS

Full Amiga 500 pack, PLUS: Lemmings, The Simpsons - Bart v The Space Mutants, Captain Planet and the Planeteers, Deluxe Paint III.

PLUS: Home pack including Word Processor/Spell Check, Spreadsheet, Database, Virus Killer

1MB AMIGA.....£345
2MB AMIGA.....£399
CARTOON CLASSICS S/W Games only.....£19
1 MB with Philips 8833 Mk II Monitor + Leads.....£544

AMIGA THE LOT!!

1MB OR 2 MB

EVERYTHING YOU COULD EVER NEED!!
CARTOON CLASSICS GAMES PACK AS LEFT,
PLUS: 10 GREAT INDIVIDUALLY PACKAGED GAMES

previous RRPs £19.99-£39.99 each, phone to choose from current list of 15, or leave it to us! Children's games available.

35 Programme Hobbyte PD Greats pack, including Virus Killers, the BEST Star Trek Computer Conflict, Breakout and construction Kit, Blizzard and other games, Arcade Classics, Board Classics, Shoot-em-Up Classics, Best of the Utilities, Home pack including Word Processor/Spell Check, Spreadsheet, Database

DUST COVER, 10 BLANK DISCS, DISC BOX, MOUSE MAT, MICROSWITCH TURBO JOYSTICK

1MB AMIGA.....£389
2MB AMIGA.....£439
With Philips 8833 Mk II Monitor + Leads.....£588

ABSOLUTE BEGINNERS PACK

4-9 YRS

FULL AMIGA 500 PACK, PLUS:
ANY 2 FROM: FLIP IT + MAGNOSE, THUNDERBIRDS OR MATCHED PAIRS
PLUS

FUN SCHOOL 2 (specify under 6 years, 6 to 8 years, or 8+ years) + **FUN SCHOOL 3** (specify under 5 years, 5 to 7 years, or 7+ years) OR **FUN SCHOOL 4** (specify under 5 years, 5 to 7 years, or 7+ years)

12 stunning UK educational games with beautiful pictures, exciting animation and music that help to develop number, word and other skills. Up to 6 skill levels. Conform to National Curriculum requirements.

HOBBYTE EDUCATIONAL PACK, featuring up to 12 'Learn while you play' games (varies according to age group)

HOBBYTE 30 EASY CHILDREN'S GAMES, 10 disc pack inc; Train Set Game, Flashbier.

PLUS: JOYSTICK + DELUXE PAINT II + 10 BLANK DISCS

1MB Amiga.....£379
Absolute Beginners s/w pack.....£55
With Philips 8833 Mk II Monitor + Leads....£574

HOBBYTE EXCLUSIVE

AMIGA FIRST STEPS

CLASS OF THE 90'S PACK

FULL AMIGA 500 PACK, PLUS: A501 512K RAM expansion Lets Spell at Home, Music Mouse, Prowrite WP, InfoFile spreadsheet, Deluxe Paint II, Deluxe Print, Music Mouse, LOGO, Talking Turtle, BBC Emulator, 5 BBC programmes, 10 discs, DOs and DON'Ts poster, Resource File, In Pack Video, NAPE Booklet. **PLUS:HOBBYTE EDUCATIONAL PACK,** featuring up to 12 'Learn while you play' games (varies according to age group) **HOBBYTE 30 EASY CHILDREN'S GAMES,** 10 disc pack inc; Train Set Game, Flashbier. **PLUS JOYSTICK**

1MB AMIGA.....£449
2MB AMIGA.....£499
DP III instead of DP II ADD.....£29
With Philips 8833 Mk II Monitor + Leads.....£648
First Steps Software Upgrade Pack.....£149

AMIGA 1500/2000

WITH WB V2

Full UK spec. latest version with 1MB RAM, mouse, expansion as B2000, manuals and operating discs, including Workbench V2, Hard disc configurations include the high performance GVP IIcontroller + RAM card, **expandable to 8MB.** Fast reliable Quantum drives only are used.

All systems include 35 Programme Hobbyte PD Greats Pack including Virus Killers, the BEST Star Trek,Computer Conflict, Breakout and construction Kit Blizzard and other games, Arcade Classics, Board Classics, Shoot-em-Up Classics, Best of Utilities, Home Pack including Word Processor/Spell Check, Spreadsheet, Database.

AVAILABLE WITH OR WITHOUT THE A1500 SOFTWARE PACK including The Works, Platinum database, WP, Spreadsheet, Deluxe Paint III, **PLUS EITHER:** Sim City, Populous, Their Finest Hour, Battlechess, A-Z of Computer Jargon, 'Get the most out of your Amiga', **OR:** Puznik, Toki, Digita Home Accounts, Amiga Book

	Without A1500 Software Pack	With A1500 Software Pack
DUAL DRIVE	545 or 379*	595
DD + GVP + 20 MB HD	699	759
DD + GVP + 52 MB HD	845	895
DD + GVP + 52 MB + 2MB RAM	915 or 799*	965
DD + GVP + 105 MB HD	999	1039
DD + GVP +105 MB +4MB RAM	1099	1139

EXTRA RAM (FITTED IF REQUIRED) £70 PER2MB

SPECIAL MONITOR DEALS WITH A1500/2000

Philips 8833/CBM Colour Monitor and leads.....ADD £195
High Res Colour Monitor CBM 1950 and flicker fixer .....ADD £545

*** These prices when you trade in your ownold A500. Additional trade in allowances for most A500 peripherals. Trade-ins available on other configurations.**
PHONE FOR DETAILS

* SOFTWARE *

- **ALL LATEST GAMES AVAILABLE AT BEST PRICES: EG.**

RRP £15.99	Hobbyte Price £10.29
RRP £19.99	Hobbyte Price £12.89
RRP £24.99	Hobbyte Price £16.19
RRP £25.99	Hobbyte Price £16.79
RRP £29.99	Hobbyte Price £19.39
RRP £30.99	Hobbyte Price £20.09

• ALL OTHER GAMES TITLES 35% OFF •

- **£4 SOFTWARE SPECIALS:** Phone for our latest list of **£4 TITLES.** Current list includes: Carrier Command Flight Sim, Back to the Future III, Fantavision Painting package, Colossus Chess, Sim City, Fast Break Basketball, Toobin' Water Sports Sim + **LOTS MORE**

THIS MONTH'S BARGAINS:

Deluxe Paint III	~~£79.99~~	£39.99
Platinum Works	~~£89.99~~	£49.99
Amos	~~£49.99~~	£29.99
Fun School 4	~~£24.99~~	£14.99
Sim City + Populus	~~£29.99~~	£12.99

HOBBYTE EXCLUSIVE
Hobbyte 52 MB, A590 Hard Drive for Amiga 500
Reviewed 'BEST BUY' by Amiga Computing Dec '91 **£399** INC P+P
extra 2 MB RAM **£70**

A500 PROFESSIONAL FAMILY PACK

NEW

FULL AMIGA 500 PACK

PLUS: Cartoon Classics includes Lemmings, The Simpsons, Captain Planet, Deluxe Paint III
PLUS: The Works Platinum, WP, Spreadsheet, Database
PLUS: Their Finest Hour Flight Simulator **AND** Battlechess
OR ANY Fun School **OR** Digita Home Accounts
PLUS: 10 Blank Discs, Disc Box, Mouse Mat, Dust Cover, Joystick + 15 disc Hobbyte PD Greats Pack (see 'The Lot')

1MB Amiga Pack.....£439
1MB Amiga Pack PLUS Monitor.....£628
As above **PLUS** Star LC 200 Colour Printer + Leads.....£819

A3000 - NEW PACK

DETAILS JUST RELEASED

A3000 25/100 WITH 6 MB RAM, SCALA, D PAINT IV, AMIGA VISION

£2795+VAT

EXTRAS inc VAT

Star LC200 colour printer with leads	£179
Star LC24-200 colour printer with leads	£269
Citizen Swift 9 pin colour printer with leads	£179
Citizen Swift 24e pin colour printer with leads	£279
Citizen Swift 224 colour printer	£239
Commodore stereo colour monitor, + leads	£229
Second external 3.5" drive with daisychain through port and disable switch	£47
A501 The Official CBM 512K RAM exp	£39
512K RAM Expansion + Clock	£29
1MB RAM Expansion for Amiga 500 Plus	£55
GVP A500 52 MB HD+2MB	£439
AT once AT Emulator for A500	£199
A590 20MB Hard drive	£264
A590 20MB Hard drive + extra 2MB	£319
A590 52MB Hard drive	£399
10 blank discs 100% guaranteed with PIN no in box	£6.99
50 blank discs 100% guaranteed with PIN no	£16.99
Supra A500 RX 8MB RAM expansion, populated to 2MB	£199
G2 Genlock for 2000/1500	£670
A2300 internal genlock for 2000/1500	£99
A2088 XT Bridge Board, 640K, MS DOS 3.3 + 5.25" drive, for 2000/1500	£119
2286 AT Bridge Board	£349
A2058 8MB RAM exp board, populated to 2MB, for 2000/1500	£199
8UP 8MB RAM exp board, pop to 8MB for 2000/1500	£399
A2630 68030 card, populated to 2MB for 2000/1500	£999
Microway Flicker Fixer for 2000/1500	£125
GVP/20MB Quantum HD (for A2000/1500 takes up to 8MB RAM)	£189
GVP/52MB Quantum HD (for A2000/1500 takes up to 8MB RAM)	£329
GVP/100MB Quantum HD (for A2000/1500 takes up to 8MB RAM)	£449
CBM 1950 Monitor + Microway Flicker Fixer	£569

ORDERING:

TELESALES NO: (0727) 56005

Next day delivery for credit card orders placed before 4.00pm subject to availabilty. Alternatively send cheque, postal order, bankers draft or official order (PLCs, Education and Government bodies only) to; **Dept. AUI, Hobbyte Computer Centre, 10 Market Place, St. Albans, Herts AL3 5DG.** Please allow 7 working days for cheque clearance. Subject to availability, despatch is normally within 24 hours of receipt of cleared payment. Prices are correct at time of going to press, however, we are sometimes forced to change them, either up or down. Please check before ordering.

DELIVERY CHARGES: UK Mainland (not Highlands)

Small comsumables & software items	Despatched by post, please check charges when ordering
Other items, except lasers	Next day courier service, £10 per box
Laser printers	Next day courier service, £17.50
Offshore and Highlands	Normal rate plus £20 + VAT per box

In addition we offer the following express services:

Saturday deliveries	Normal rate plus £10 + VAT per box
7am to 9am next day	Normal rate plus £10 + VAT per box
Am next day	Normal rate plus £5 + VAT per box

CBM CDTV

WITH FREE LEMMINGS, HUTCHISONS ENCYCLOPEDIA, WELCOME DISK AND DISK CADDY £449

ALL CDTV TITLES AT 25% OFF

FULL RANGE OF ACCESSORIES AND TITLES AVAILABLE

NO DEPOSIT CREDIT FACILITIES (UK mainland)

Credit terms at 34.8% APR (variable) can be arranged for puchases over £150, subject to status. Competitive leasing schemes are also available for businesses, including sole traders and partnerships. Just telephone for written details and application form.

PHILIPS 8833 COLOUR MONITOR, LEADS (WITH ANY PACK) £199
GOLDSTAR TV/MONITOR WITH REMOTE CONTROL +LEADS £199

COMMODORE PREMIER DEALER

Hobbyte proudly announce this highest CBM accolade, awarded to only the top few dozen CBM dealers offering the best in expertise and support. **All Amigas full UK versions.**

TELE-ORDER (0727) 56005

CALLERS WELCOME AT OUR BRANCHES OPEN 9-5.30, Monday to Saturday

Amiga prices, except where stated are inc. VAT & P&P

HEAD TO HEAD

The Third Dimension

IMAGINE vs REAL 3D

Creating three dimensional objects on a 2D screen needs immense computing power and lots of intelligence on the part of the user. Barry McCarthy puts the two leading Amiga programs head to head and shows how marvels are becoming easier to achieve

Most 3D programs used to work a bit like early computers. You have an office block full of wires, valves and very clever people that work for six and a half weeks on modelling a shiny ball that goes from left to right. What do you get after all this time? A lump of burnt bluetack that stays at the bottom of the screen most of the time and then suddenly appears at the top, while simultaneously appearing in three other places and in three other shades of burnt bluetack.

And you still say "WOW!"

Things have developed at an amazing pace. Computers are now so small that people keep losing them down the back of sofas and they can be controlled by anyone with a mind to (or anyone without!).

Three dimensional design and animation has become an everyday occurrence seen on adverts, television programs and in films and videos. The power and apparent realism of these new 3D systems is good enough to fool most of the people, most of the time. We all take it completely for granted.

Still, these sophisticated illusions are created on prohibitively expensive computers that are way out of the reach of any ordinary bank account.

The Amiga came along and tried to change all that. First attempts were tediously complex and difficult to use but occasionally produced amazing results, if you were willing to forego your youth, hair and bank account. Now there are several personal computers that can produce professional results at a fraction of the price and still allow you a wonderful childhood. So, has the Amiga been left behind after it's flying start? A bit, maybe.

BUT, things might once again be changing in its favour...

The past year has seen a sudden resurgence in Amiga popularity, with amazing devices like the Video Toaster, HAM-E and DCTV making it once again, king of the video market.

HEAD TO HEAD

There has emerged a new generation of sophisticated but user-friendly software.

The area of 3D modelling and animation has spawned several second generation products. Despite owing a lot to there fore-runners, they are essentially very different.

At this point I feel have to mention Byte by Byte's Sculpt Animate 3D, as I feel that this was the most influential fore-runner of the new age of 3D programs. It had a nearly user-friendly interface, reasonable learning curve and excellent interactive tools. Powerful animation and superb images. Unfortunately it was just too slow and the animation process was often horribly complicated and unreliable. The program was ready for a complete re-vamp but it never got it. Scott Peterson, who ran Byte by Byte, took against Commodore and deserted to other electronic platforms.

IMAGINE 1.1 V REAL3D v1.4

Imagine is a re-vamped version of an old program, Turbo Silver.

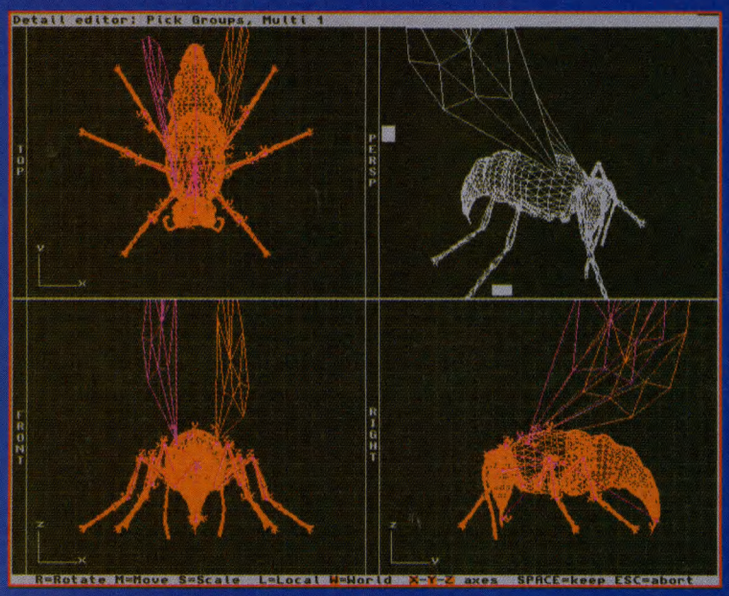
Turbo Silver had amazing possibilities and incredible effects but an interface that made it like driving a Ferrari with two sleeping bags sellotaped to your arms and a learning curve steeper than conquering the Matterhorn on a pogo stick. It did have a big manual though. A manual that reads like a telephone directory, not very flowing.

But don't be put off by its parents, Imagine is truly a new generation product. It has taken all the potential and hidden power of Turbo Silver, bolted on a couple more turbos, added triple, mega bomb firing lasers on all sides and hidden all this behind a professional and friendly interface. Oh, and a manual that reads like a tele....

"Oh well, you can't have everything. Maybe in Version 2?"

Imagine takes a very modular approach to 3D. The program consists of a suite of smaller modules, each with their own distinct function as part of the whole.

The interface has four views of your creation, top, side, front and 3D view. The windows can be viewed together or any one can be made to fill the screen. There are the usual grids and choice of interlace and coordinates. You can zoom, pan and



This is really the OTHER contender in the Amiga 3D market at present.

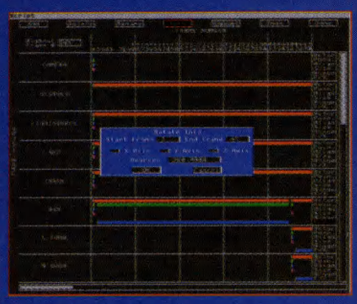
It takes a different approach to 3D modelling and also to animation creation.

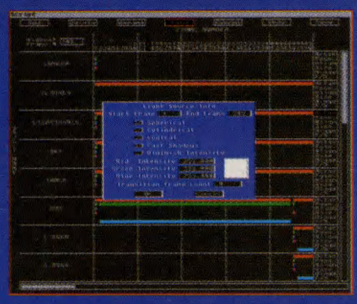
Real 3D is a 'solid modeller'. That is, it uses primitives that are all built from mathematical formulae not point by point. Complex objects are built by combining these primitive building blocks and so, the re-draw and rendering speeds should be reduced and images have perfectly smooth curves.

In a lot of ways I see Real as the Deluxe Paint of the 3D market. It has a very intuitive and seemingly simple interface that belies its real power and sophistication.

You are presented with the customary top, side and front views, with the wireframe, 3D view split to another module. Nearly all of Real's editing functions are interactive with the mouse and a visual representation on screen. This makes it very easy to see what is going on and to understand the more complex functions.

Hierarchical construction is another of Real's basic princiles. The technique of arranging all building and objects in a file and directory format that works just like AmigaDOS, making editing and moving around models very logical.





centre the display with menus or keys. In fact nearly every function of Imagine has a keyboard equivalent, which makes it very quick to use, when you know your way around. On top of this, the initial start-up can be user configured to contain your own keyboard short-cuts and even your own resolutions.

Imagine is a point orientated modeller. Every object you make, consists of points and lines making triangular faces, that can be seen in the final image. This is the traditional approach to 3D. Its advantages are that models can be very complicated and detailed and very finely tuned and tweaked. Disadvantages are the slowness of the redraw speed and often the slowness of rendering due to complex objects. Think of a sphere. If you want it to look smooth, then it will need to be made from a lot of triangles, to avoid noticing angular joins. Saying that, Imagine seems to fly along quite happily, even with fairly complex objects on screen. It also has several tricks to help. Any or all objects can be represented by bounding boxes. There are new, perfect sphere objects made up of a mathematical formula, with no triangles. Phong shading can be applied to objects and parts of objects. This smooths out angular surfaces very successfully.

Seeing as Imagine's ethos is one of a modular approach, let's take a look at it in the way that you would use it.

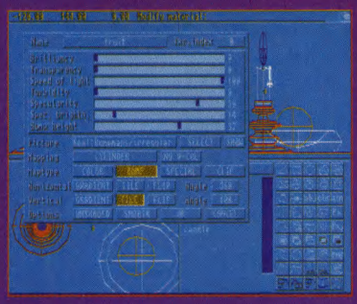
First up is the detail editor. This is where most of the modelling takes place and it shares exactly the same screen layout and controls as the other editors. They even share the same coordinates and relative scale which makes moving between them very easy indeed.

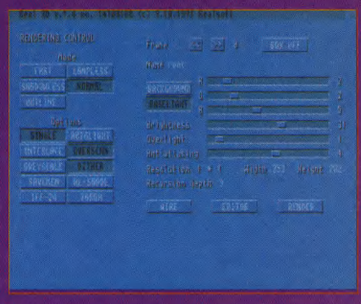
You can start building your objects by adding from the usual set of adjustable primitives or build them entirely from scratch using points and lines. Another ingenious building option is the forms editor. This is a separate module that allows you to create certain types of difficult objects. It uses a cross section and a number of slices to form objects like fluted jars or sea urchins. It's a difficult process to explain and it does take a while to get used to but it can be very effective in some situations.

Back to the detail editor. This really is an incredibly powerful 3D modeller. You can stretch, move, rotate and alter the axis interactively with the mouse. The mould requester lets you; extrude along a line or path with rotation and scaling as it goes, or replicate the object in the same way, spin, sweep, conform to sphere or cylinder (a bit like bending). You can create a skin from a set of formers, turn 2D images into 3D, execute Boolean operations where one object acts as a tool to cut another object. Edit an object face by face or point by point. You can even mould organic objects using an adjustable magnet. This is totally invaluable. It gives one the impression that you are moulding clay. Wonderful.

Once the object has been modelled, you can decide on its surface attributes; colour, reflectance, filter (the light that goes through), specularity (colour and intensity of bright areas), dithering, hardness, roughness and shininess. All of these values can be adjusted to 24 bit accuracy. It doesn't stop there though. You can enter the refraction index (how much light is bent), Phong shading, fast draw or not, the object as a light, as a bright object or a genlocked object.

Finally you can add up to 4 mathematical textures and up to 4 IFF textures. Mathematical textures do not lose resolution as they consist of a formula to describe them (Imagine comes with several, that are all adjustable but take a lot of experimentation to work out). The IFF textures can be mapped and adjusted interactively by the mouse and can also provide effects such as fog, stained glass, multi-coloured mirrors,





Real 3D's editor has many of the functions of Imagine but relies heavily upon Boolean operations to create more complex objects. The operations produce horrible wireframe representations, that contain all of the information of the tool and the work piece. Thankfully they can be tidied up using the Rethink option and then made accurate by editing the wire by hand.

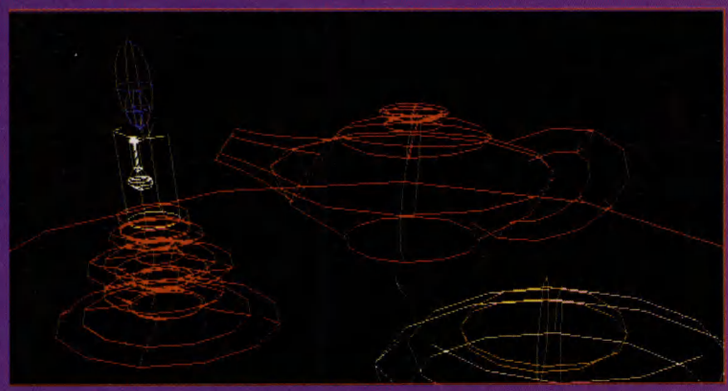
What's new in 1.4?

Version 1.4 of Real has some extremely smart manipulations of objects. There are 24 ways to bend things (something every 3D program should have), new mesh objects made up of points and lines, new tools, like; curved lathes and different shaped tube tools for making round or square tubes..., pixel tools to turn 2D images into 3D objects, with every pixel represented by a 3D (I have to say that this is of limited use and really slows the program down). Real now has point editing just like the traditional 3D programs. Unfortunately only the point-based mesh objects can be properly edited or bent in 24 different ways.

The texture mapping section has been re-designed and made very user friendly, with sliders and buttons for everything and a 'view texture' option. This makes wrapping textures wonderfully simple and the results can be very quickly tested in the renderer. Maps can now also be bump maps to provide raised surfaces like beaten copper and bark.

The free-form objects that have been added come in a variety of types such as curves, loops and spirals.

The rendering section of Real 3D has always been very impressive. Easily adjustable, with some excellent modes (such as grey scale for technical or DTP work) and produces very realistic and impressive looking results at astounding speeds. Now it has had 24bit rendering and anti-aliasing added to it.



Imagine vs Real3D

Well, someone has got to make a choice. They are, after all both aiming at the same market, offering the same job. To produce 3D animations, whether for fun or for business.

But the choice is not quite that simple.

I know which one I prefer but that is because I have a very specific job for it.

You really have to ask yourself, "What do I want to do with my 3D program?"

bump maps and animated textures. No other program provides such exciting and sophisticated possibilities.

You could now go to the cycle editor. This is a FAB idea which is well worth fiddling with. If you, say, wanted to create an animated hand with jointed, movable fingers you would build it in the detail editor and then load it into the cycle editor. Here, the fingers are represented by a diagram which you can move, tilt and rotate. Set up a number of frames like a little animation and define key frames that hold your specific positions for the hand; say, a fist and open. Save the cycle object and return to the editor. You can still alter the design and attributes of your new cycle object without damaging the mini animation that it is capable of. When ever you load a cycle object into the stage editor, it is capable of animating as you set it up to do, while following any of the commands on the stage. For example, the fist could clench and unclench, whilst following a path and rotating 360 degrees and also grow to twice it's size, change colour from flesh to green and finally explode into pieces! Easy.

Let's move onto the stage editor. This where you set up your lights, actors (objects), camera, and any globals such as ambient lighting, background colours and turbulence in the sky.

When you load in all your carefully designed objects, forms and cycle objects, they are all in there original positions, scale and orientations. Move them and rotate them with the mouse if you wish and set up paths and orbits for objects. Now we enter the action editor. This is the real guts of the animation control in Imagine and it's a superb idea. All objects are represented by a set of bars that extend across the frames of your animation from it's name. It's a lot like a sequencer. There are bars for actor (what it is), position, alignment (where it's facing), size, hinge (denote another actor as a gravity-

like influence on this actor), FX (special effects) This is really doody! Add rotate, grow, explode or ripple to any object and adjust it in many ways. Get a car to ripple as if it is made of water or a building to explode into a thousand pieces. The possibilities are endless and incredibly impressive. All the bars have there own distinct colour and you can freely add, modify and delete any bar, complete with UNDO.

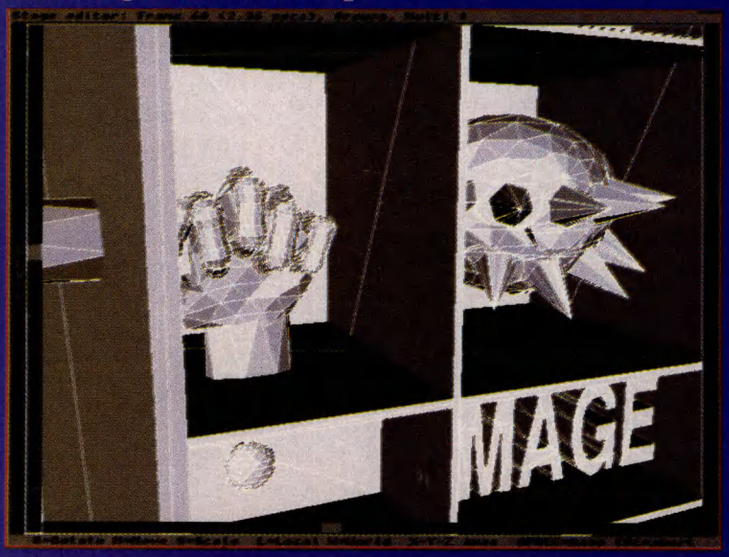
Once you learn this action editor you realise what a powerful tool it is. Objects and even lights and globals can be morphed in any way (size, proportion, shape, colour, attributes,...) imagine morphing the globals to create sun sets and sun rises!

Back on the stage and you can try out your animation in a quick wire-

frame format that will run as fast or slow as you like and can step through, frame by frame.

When you are satisfied, move to the project editor and set up your resolution and picture band animation format. The final animation can be rendered in several formats from wire to full trace and in any resolution from lo-res to 24 bit.

The images are outstanding.



◀ Let's go over Imagine and Real3D before I answer that.

Real 3D takes the intuitive interface approach and as far as user-

friendliness is concerned, comes out way in front. None of this typing in endless streams of numbers... Everything works just as you would expect it to and it's all interactive and happening on screen in a visual way. I really think that this is how 3D programs should work. After all that's more how our minds work, by interpreting the data from our eyes (our major sense). Real 3D is a very solid and professional product.

The hierarchical and primitive solid approach means that it is quick to edit and that rendering is blistering!

So why have they now added point based objects?

Ah! Well, primitives are all very well but imagine trying to build a natural looking flower from a collection of spheres and cones. It's not easy and after a few Boolean operations the screen becomes very cluttered and slows down markedly. Enter the mesh or wire frame object. Now it's much easier. It's also a lot slower and awkward because Real is not really a point orientated editor. Imagine is. Imagine's strength is it's seemingly endless supply of editing and modifying functions. Anything you imagine can be created. On the other hand it may take you a fair bit of time...

Imagine makes you feel like it has no limits to it. You can keep delving and pushing it to produce ever more complex scenes and animations and there is always a way that it can be done.

is a price to pay though. Time. Learning Imagine takes a lot of time and even more patience. The manual is no help here. It only covers the basics in tutorials (Why do companies do this? It's the more advanced functions that we will need help with!). The reference section is far too short and explains very little.

Real 3D's manual is a little better but still leaves too much to trial and error and has some glaring omissions (like missing out around 62 of the keyboard equivalents!)

Real 3D also gets frighteningly slow when using complex objects and more complex animation.

The final conclusion really depends on what you want your 3D for. If it is for quick commercial production of fairly simple scenes and animation that can include extensive texture mapping, with a quick learning curve and speedy rendering then Real 3D is probably the one to go for. If you ever need to create anything very intricate or produce a more complex, hierarchical animation and you are willing to learn a more ambitious program, that will grow with your learning, then Imagine cannot be beaten. It really has no limits (well nearly).If you could mix both programs together, with Imagine's complexity and flexibility and Real's intuitiveness and graphically orientated interface you have a killer!

I have tried to be as unbiased as possible, being a constant user of both programs and at the same time give you an insight into each one's advantages and disadvantages. Saying that, I can't stand these lily-

livered reviewers who won't speak their mind and give a final, totally personal decision. Get off that fence and have a hand in our democracy!

So, in their present forms of Imagine v1.1 and Real 3D v1.4, I have to admit that I have fallen in love with Imagine (sick puppy!). It give me the tools to make my dreams a reality. We are told that Imagine 2.0 is available, but in spite of strenuous efforts no 2.0 had reached us by press time. When - if it arrives - you should hear of it.

Thanks to the makers and distributors of Imagine and Real 3D for their wonderful products and continued support. Oh, and keep up the competition!

What you need to do 3D.

Basic modelling can be done on an A500 with 1MB RAM but animation really needs much more memory and a hard drive. Anything remotely past the basic animation stage really ought to have a big full up Amiga with go faster stripes, a turbo charger, leopard skin seats and fluffy dice.

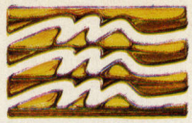
I use a 2000 with 9MB RAM, 140MB HD, 68030 board and honestly, this is the minimum.

Imagine 1.1	Price: £199.00
Imagine 2.0	Price: £269.00
Upgrade to 2.0	Price: £88.00

Contact: Applied Vector Technology, 081-569 3338

Real 3D Version 1.4	
Beginner's version	Price: £110
Professional/Turbo	Price: £305

Contact: Alternative Image, 0533 440041

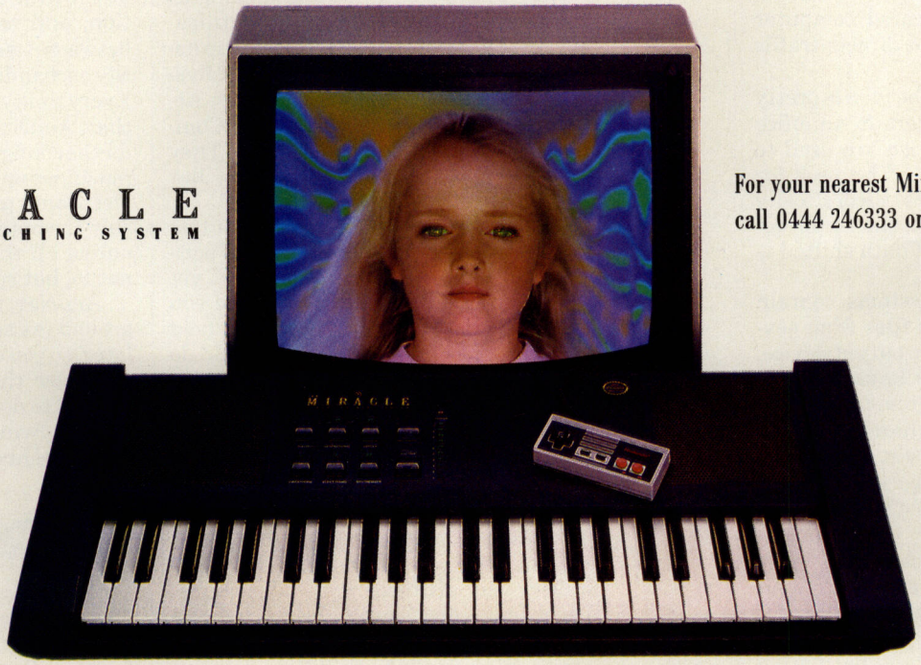


'Play me I'm a Miracle'

'I'm the most amazing piano ever. The first-ever piano that actually teaches you how to play me. ♫ In fact I undertake to make a proficient player of any child or adult who follows my unique system of progressive lessons. Devised and written by professional music educators. ♫ My secret: video games technology to make the whole thing fun, fast and enjoyable. Using my Artificial Intelligence Technology to monitor each lesson to build a series of personalised exercises – just for you. ♫ Not to mention my State of the Art stereophonic sound with over 100 instruments, sounds and effects. And I'm Midi compatible – naturally. ♫ Then there's my unique sensitive professional keyboard with full-sized keys that respond to your touch just like a piano. My musical repertoire of over 50 pieces. ♫ Experience a demonstration of my superb teaching and performing powers at selected stores. **I'm not so much a present – I'm a lifetime's gift.'**

For use with Nintendo, Commodore Amiga and P.C. formats. From £249.00.

THE
MIRACLE
PIANO TEACHING SYSTEM

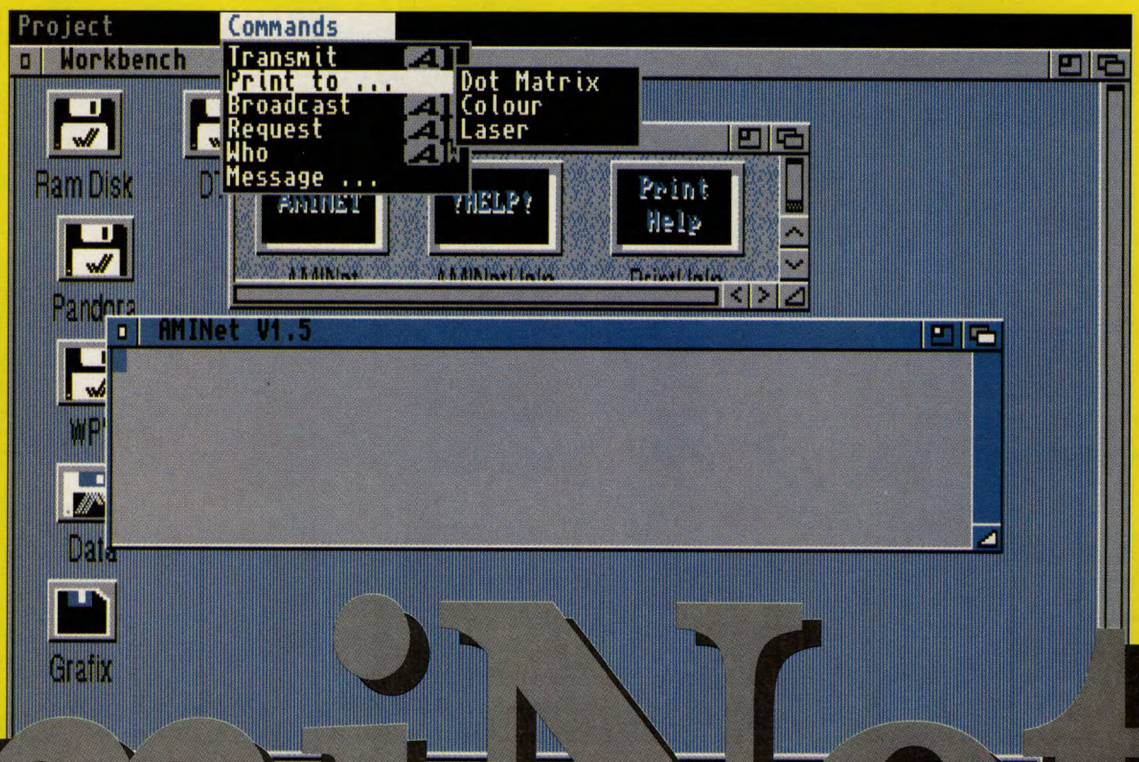


For your nearest Miracle stockist call 0444 246333 or 021 625 3344.

The first piano that teaches you how to play it.

TEST DRIVE

Mike Nelson examines budget networking to get your Amigas talking to each other.



AmiNet

Networking is usually an expensive business requiring a major exodus from the bank account and complicated hardware, including a dedicated computer which just sits there and directs traffic around the system.

What's it all about? The idea is pretty simple. All your computers in an office are linked by cables which are used to pass data between them. The uses for such communication are theoretically limitless, but, in practice, the factor determining the amount of data shifted is the speed of the system.

Most networking systems contain software to pass printer files from several computers to a single output device, eliminating the need to have 20 laser printers. They will also provide a form of electronic mail facility whereby you can send messages (like "party at my place!"), to everyone on the network, or just to selected people (maybe "You're fired, Nelson!"), depending on your requirements. The recipients can then reply accordingly when they receive the mail (perhaps "Great!, what time?", or "Sod off I hate this job, anyway"). Another really useful application is to share hard drive space, or CD-ROM drives, between several machines.

The product, AmiNet, we test drove is a budget networking system for Amigas. It functions through a very clever utilisation of the serial port for the data transfer. AmiNet is supplied by Applied Systems Group, known for their Arena Accounts package and who are also Commodore's right hand UNIX people. They organise darn good DevCons too, but that's only a sideline.

The kit we received was a Beta test version, with a 1.5 release of the software. The extra hardware was not yet ready for shipping, but by the time you read this, you should be able to get hold of a serial port duplicator. All I could do was connect two Amigas with a null modem cable, but this was sufficient to try out the system.

Easy Installation

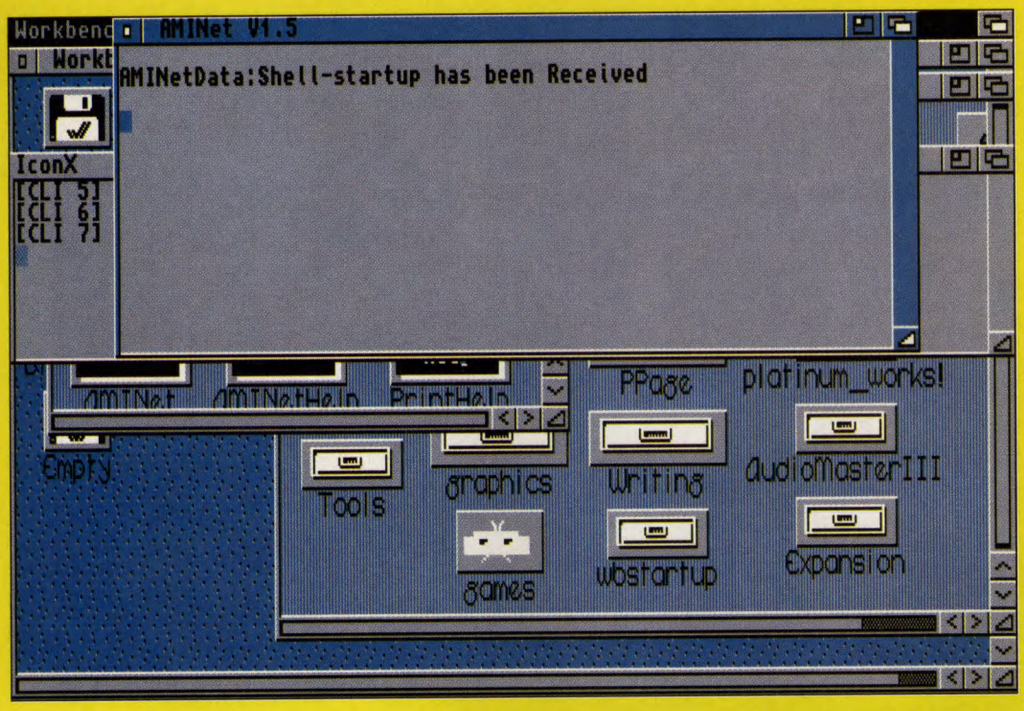
The software comes on a single disk which is installed onto the hard drive, if required, but will also work off a Workbench floppy disk if your machine is A590-less. Installation is a breeze, with the script creating all the necessary drawers and icons for you.

Loading the AmiNet program for the first time reveals a configuration window which asks you to name your station, and to give it a unique number between 1 and 253 so AmiNet can identify each individual node on the network. Every time you launch the program after that, AmiNet simply checks its data file for the configuration, and then polls other machines on the network to suss out who else wants to speak. Note that you don't ruin the network by not having everyone online all the time; it's just unsociable not to, but some people are like that!

AmiNet runs quietly in the background (as several tasks, more of which later) so you can carry on with your work, whatever that may be, until someone decides to do something. Clicking on the AmiNet window activates a couple of simple menus with some straightforward choices:

Transmit

This allows you to send any file, whether it be an executable program or just text, a sample or IFF picture, to a specific location. Once you have selected the file



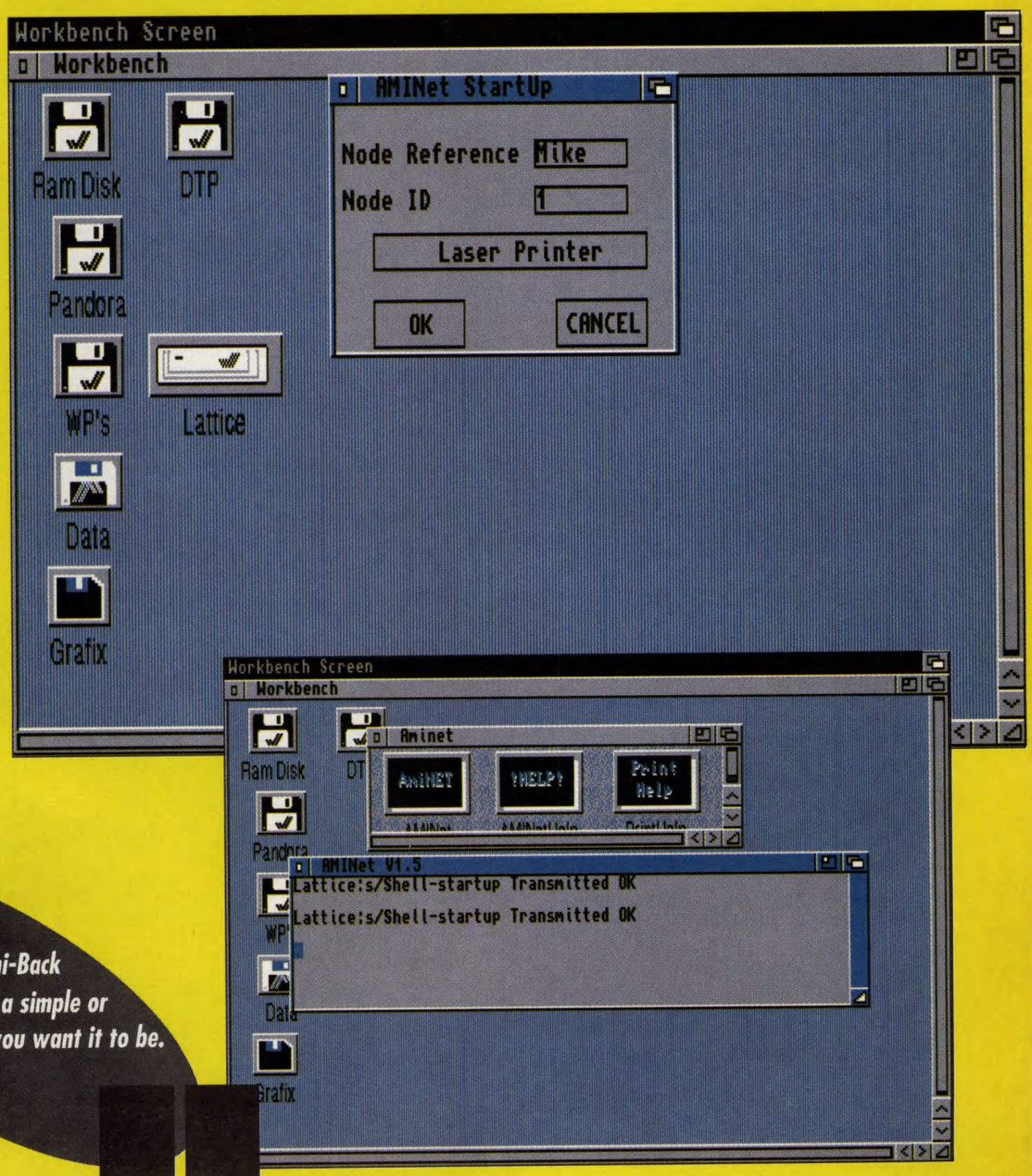
for AmiNet to take a list of files to be sent and then be left to do its job, even if it does take all day. Support for AmigaDOS wildcards could be a simple way around the problem and may get included in the future sometime. At the very least, any accompanying ".info" files should be copied automatically so icons are preserved for the new user.

Where does the file end up on the destination machine? Good question as the chances of AmiNet finding the exact equivalent directory are minimal, especially when the two machines are mine and Gwynne Harper's (he has a warped sense of hard drive management). In fact, when you install the software, a drawer called "AmiNetData" is also created on your sys: partition or disk. It is here that

from the rather flat 1.3-style requester, another window pops up with a list of the possible destinations - the other active nodes on the network. Once your selection is made, the extraneous windows vanish and the drive lights flash as the data is downloaded. The main AmiNet window informs you when all is well and the file has been transmitted successfully. Likewise, on the recipient machine, a message that a file has been received is posted.

This transfer process relies on the serial ports of the Amigas and so is not stunningly fast. In fact, it is breathtakingly slow with a 450K Professional Page file taking over 11.5 minutes to get from one Amiga to another - far slower than copying it to a floppy and then reading the disk in the second Amiga! It would have helped immensely if there were some kind of indicator to tell the user how much data had gone and the approximate amount left. However, one redeeming fact about this is that there are no appreciable detrimental effects on the Amiga's multi-tasking as the bulk of the time is taken with the actual serial port access, rather than direct involvement of the processor. It also has to be said, however, that the two machines in question were fitted with meaty accelerators which may have had some positive influence on the proceedings!

One problem I had with this transmit business is that you could only specify one file at a time and although there are ways to send a bucketful, I cannot see it being desperately difficult



> *The beauty of Ami-Back being that it's a simple or complex as you want it to be.*

AmiNet

CONTINUED

all your transferred stuff ends up, and you can then copy it to somewhere more appropriate.

Print to

AmiNet provides some basic support for networked printers. In the configuration requester is a gadget to select a type of printer to be associated with a given node, and the choice is laser, dot matrix, colour, or nothing. When you select "Print to", AmiNet first asks you which type of printer you wish to use, and it then polls each node to suss out which are equipped with the appropriate printer type. Usually, you will only have one laser printer on a network, but larger locations may have several, so it's nice to have the choice.

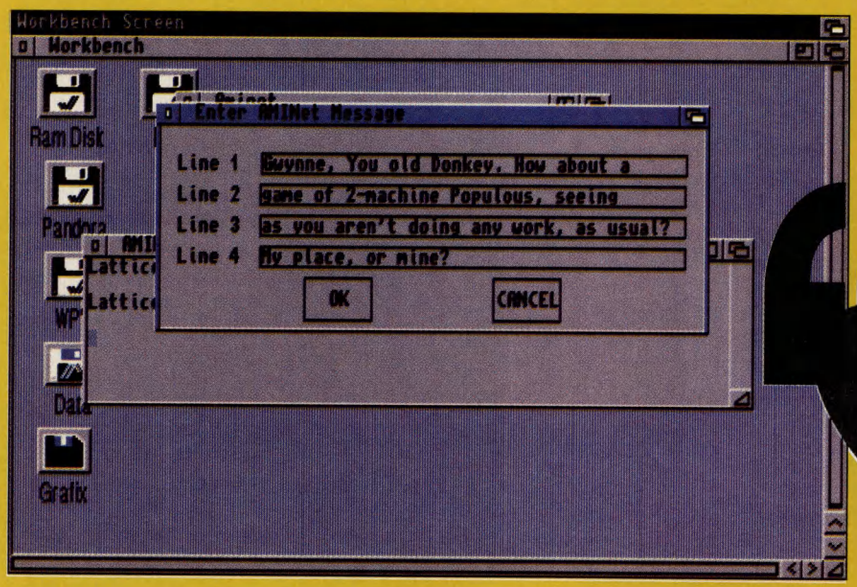
Next, you are asked for the file to be sent to the printer, and this is all well and easy if it's a simple text file, but many programs like ProPage or DPaint write directly to the printer making it difficult actually to generate a file, but there are ways around this.

AmiNet then sends the file to the appropriate node which places the data in another drawer called AmiNetPrint. A separate "Printer" task then takes care of the files in this directory, sending them in turn to the printer, so your computers are not tied up waiting around for printer time. Oh! The wonders of a multitasking machine!

Broadcast and Who

This Transmits your selected file to every node currently on the network. It's a bit like a blanket bombing so you can remind everyone that your birthday is imminent and it's in their best interests to do something radical in the present buying department. I managed to hang my little network trying this function out, but I'm sure that it's just a teeny prerelease bug which has probably already been completely eradicated without any mercy whatsoever.

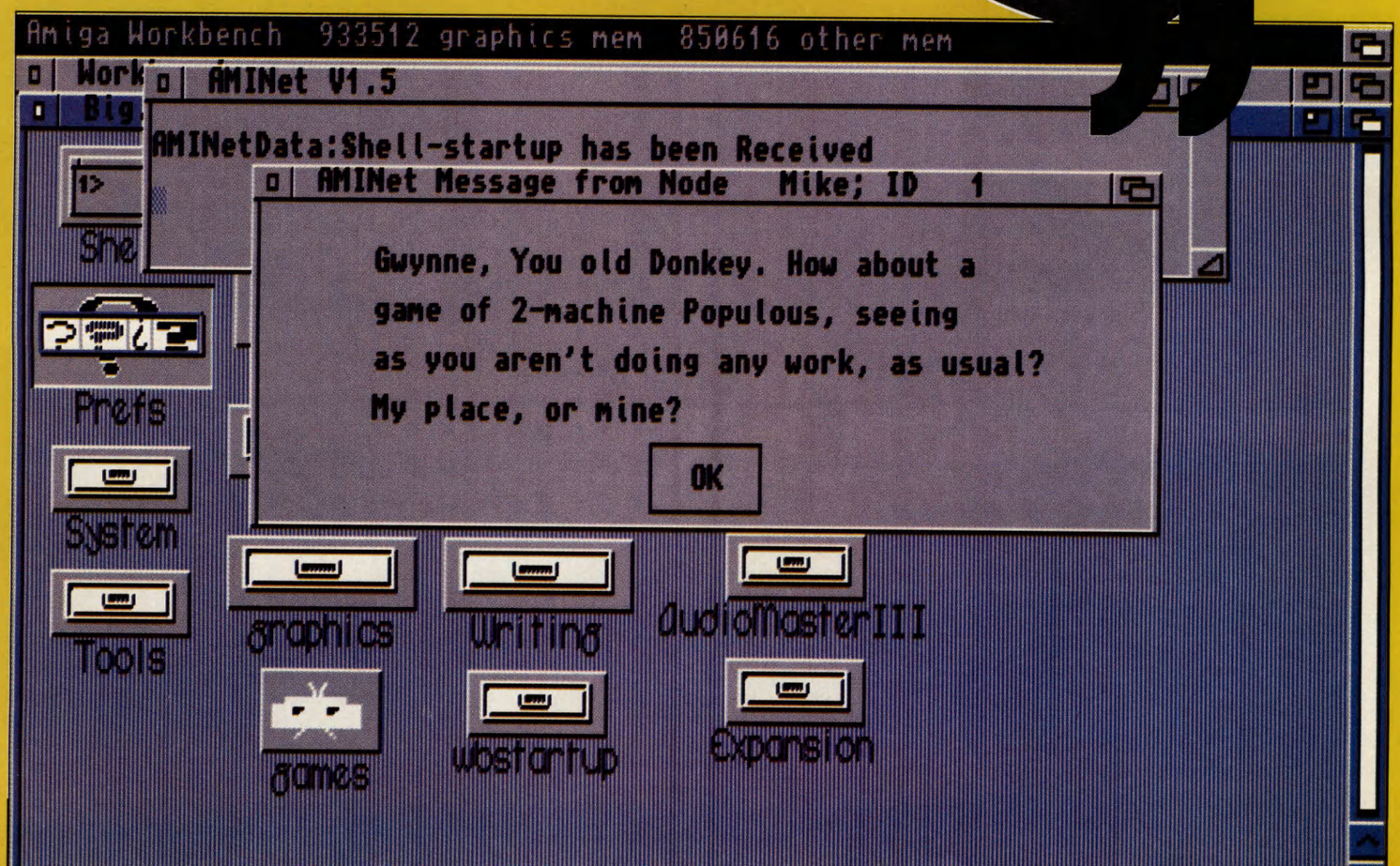
"Who" is a useful function which gives you the names of everyone up and running on the network, so the boss can spy on them to make sure everyone is switched on and hard at it.



> *Where does the file end up on the destination machine?*

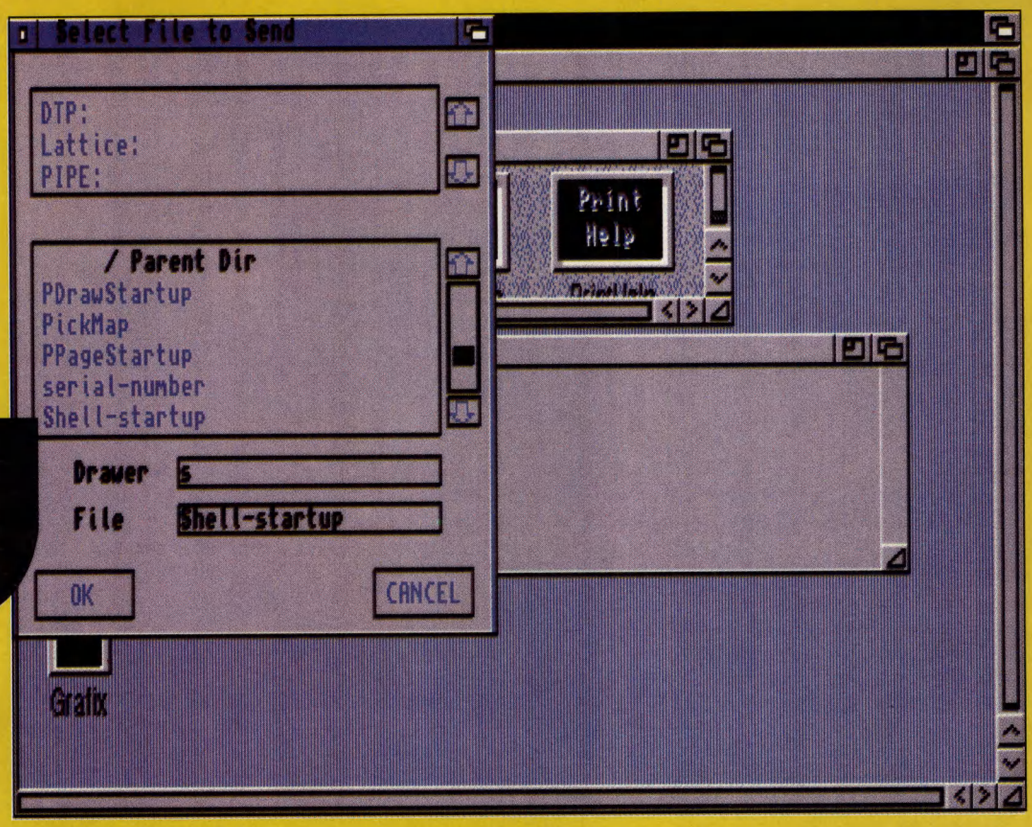
Message

This is used when you



Using it from Shell environment with its powerful scripting facilities adds a completely new dimension.

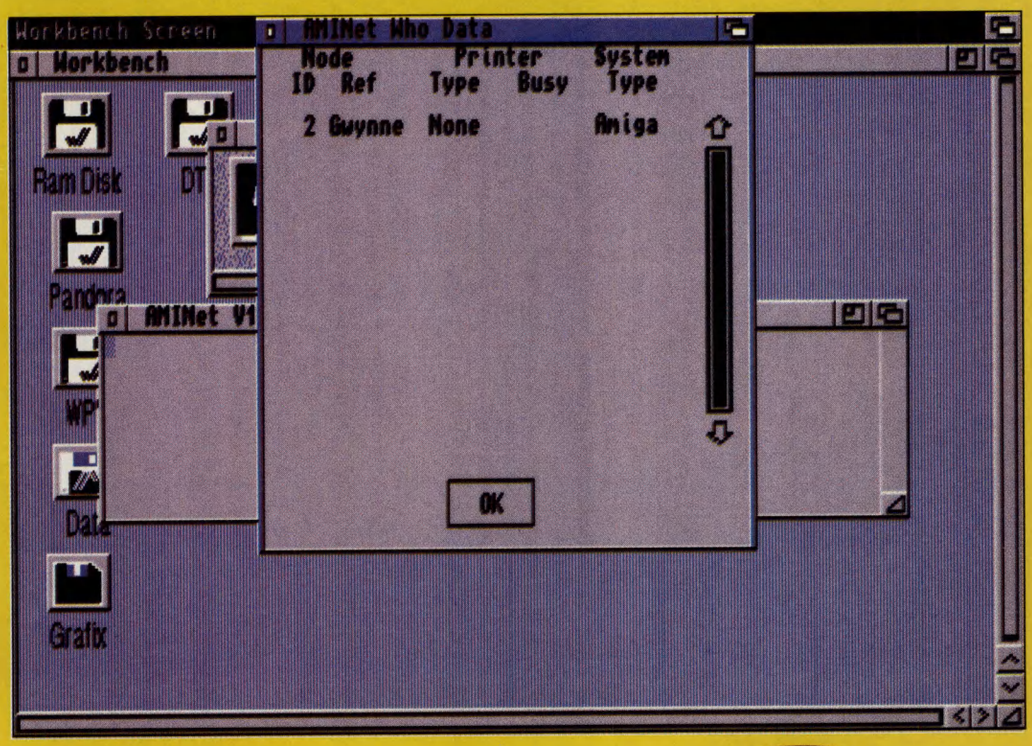
find someone slacking off or you have some specific news to tell a given person, or even everyone, depending on the selection. You get to type in a 4-line message which doesn't give you much scope for eloquence, but is broadcast to the appropriate nodes. These open up a window with the sender's name in the title bar and the message is displayed. If the receiver is struggling on the toilet (away from the machine), AmiNet saves the message in the data drawer and closes the window, just in case any more come in to mess up the display further.



Other Features

You may be thinking that AmiNet is clever, but rather limited, and to be honest, I'd tend to go along with that, but using it from Shell environment with its powerful scripting facilities adds a completely new dimension to the proceedings. The "Net" command may be placed in your C: directory and this allows the CLI user to access the network with exactly the same functions available as under the AmiNet Workbench program. With the help of AmigaDOS' built-in scripting language, there is virtually no end to the fun and games to be had with it.

Another useful feature is the startup commands which are located in a file for AmiNet to run when it is first launched itself.



Conclusion

AmiNet is a very clever system for first time net-workers. There are obvious deficiencies associated with using the serial port for data transfer, and there doesn't seem to be any way to alter the speed or buffering of the system, even with the usual Preferences options. Educational establishments with loads of Amigas to be hooked together will presumably form the majority likely to be interested in AmiNet, and those on a budget should find it better than passing a disk around the class! Overall, AmiNet owes much of its basic design to the Amiga's operating system, but this is a novel, inexpensive way to exploit it.

AmiNet is a very clever system for first time networkers.

Price: £50 per machine.
Contact: Applied Systems Group Ltd, Queensway Business Centre, Brigg Road, Scunthorpe, DN16 3RT.
Tel: (0724) 280222

IT'S ALL THERE

Where can you find which software, hardware and peripherals you can use on the Amiga?

Where can you find all you want to know of the products that will give you the best graphics, video, sound, music, DTP, programming and all the rest of the magic that the Amiga can provide?

In the Amiga Buyers Guide. It's all there.

The Amiga Buyers Guide

Spring 1992 Issue

Published on the 29th of February 1992

If you want to know what there is to get the best out of your Amiga, get the Amiga Buyer's Guide!

WE CAN'T THINK OF A HIGHER CALIBRE PRINTER AT SUCH A LOW PRICE, CAN YOU?

Fujitsu's new dot matrix printer – the DL900 – is undeniably low-priced. Less than £250.

The question is, what can you expect for your money?

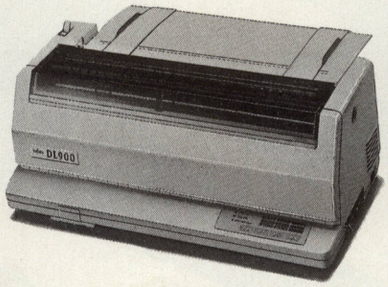
Can you expect really high quality print output, for instance? Well yes you can. The DL900 is a 24-pin printer with a speed of 180cps.

Do you get a variety of printing options? Sure. You can print envelopes, bar-codes and labels with a wide range of resident fonts.

And what about spread sheet capabilities? (Yes again, you can print on A3 portrait or A4 landscape.)

Is it compact though? Indeed it is. Even being a 110 column printer it's smaller than most 80 column models.

Easy to use? Definitely. The free set-up program disc means it's simple to configure the DL900 via your PC.



FUJITSU

The global computer & communications company.

Anything else? Of course. The DL900 is designed and manufactured by the world's second largest computer company.

Need we say more? We think not.

Please send me further information on Fujitsu's new DL900 printer.

Name _____

Title _____

Company _____

Address _____

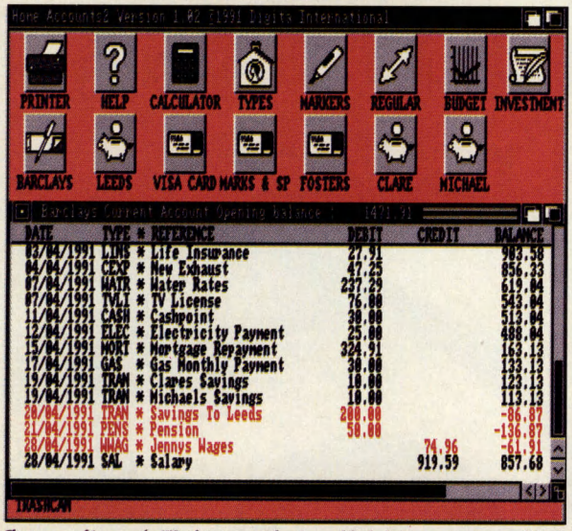
_____

Postcode _____ Phone _____

Fax _____ AUI/3

Fujitsu Europe Ltd, 2 Longwalk Road, Stockley Park, Uxbridge, Middlesex UB11 1AB. Phone: (081) 573 4444, Fax: (081) 573 2643.

TEST DRIVE



The top row of icons on the HIP relate to preset functions, while the bottom row access user-defined accounts. Each account can be viewed on screen, as shown, within detailed statement windows, with the added benefit of transactions shown in red when the account balance is in arrears.

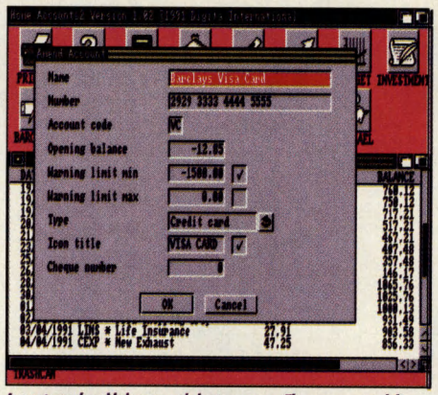
Money isn't the key to true happiness, but it can lead to material pleasures and personal enjoyment. We all like splashing out on holidays, clothes, nights out and other leisure activities. Paying for them, however, is a different matter altogether - whether the cash is available or not, can we really afford to?

Knowing how much money is really available is always a problem. Bank statements can show a detailed balance of account on a specific date, but what of the expenditure since then? And what about those looming expenditures which can, all too easily, be forgotten. The only way to control expenditure is to keep a money diary - writing down every current and future expense that will occur. It is then easy to calculate a balance on any specific date, and preview forthcoming expenditure. Welcome to the world of accounting!

Home Accounts 2 facilitates the process of constructing computerised accounts which are detailed, can be altered easily and can produce analysis of data. The best way to learn a product is to use it for real. To this end, the manual offers a lengthy guided tutorial of an example budget. The tutorial takes about an hour to complete, but it provides a good understanding of the system and of setting up new accounts.

The program is not new, Home Accounts was released some years ago, but in addition to sporting Digita's new HIP - Human Interface Protocol, it now offers more flexibility and can process an unlimited number of account files for use with personal, local club, or small business finances.

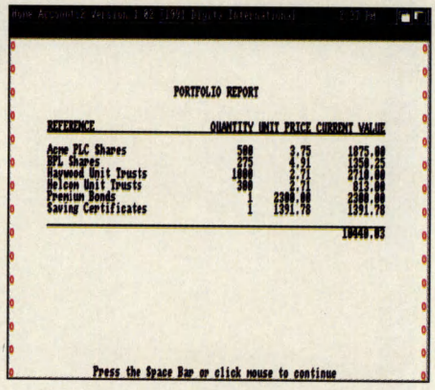
Within a file, an unlimited number of accounts can be set up to emulate real money accounts, such as bank, saving, credit card, and cash. Regular transactions, such as wages and mortgage repayments, are given to, or taken from, individual accounts at regular intervals, which is set during the transaction's definition. Manual transactions are keyed in manually throughout the financial period with each assigned a TYPE, which may be anything from CLOTHES, FOOD, SAVINGS, POLL TAX, or anything else that is defined. This flexibility allows all income and expenditure to be categorised into "TYPE" groups with monthly budgeted figures attributed to each.



Accounts can be added, or amended, at any stage. They are easy to define and an icon is provided, depending on the type of account. This account has been set to auto-highlight if the account balance drops below -£1500.00.

When transactions are entered, either manually or automatic, they are not activated unless reconciled. Unreconciled transactions are those which are known to be imminent, but haven't occurred yet. Thus, credit transactions can be entered as unreconciled and later reconciled when bank or credit card statements are received. There are many options for auto-reconciling transactions which are useful for regular or cash transactions.

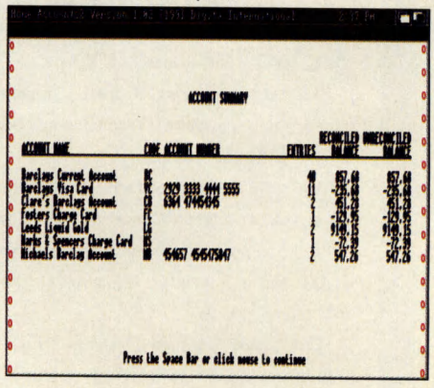
Each time Home Accounts 2 is run, a requester prompts for the correct date, with the system date as default. All reconciled transactions up to the system's date, manual and regular (automatic) are calculated within each account, and a detailed account statement generated. Unreconciled transactions are shown, but their value is not included in the calculated statements.

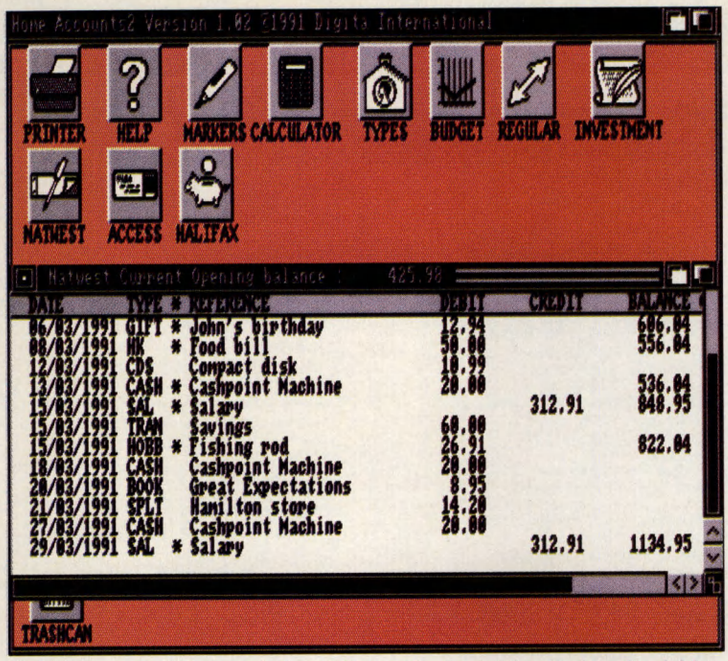


Home Accounts 2

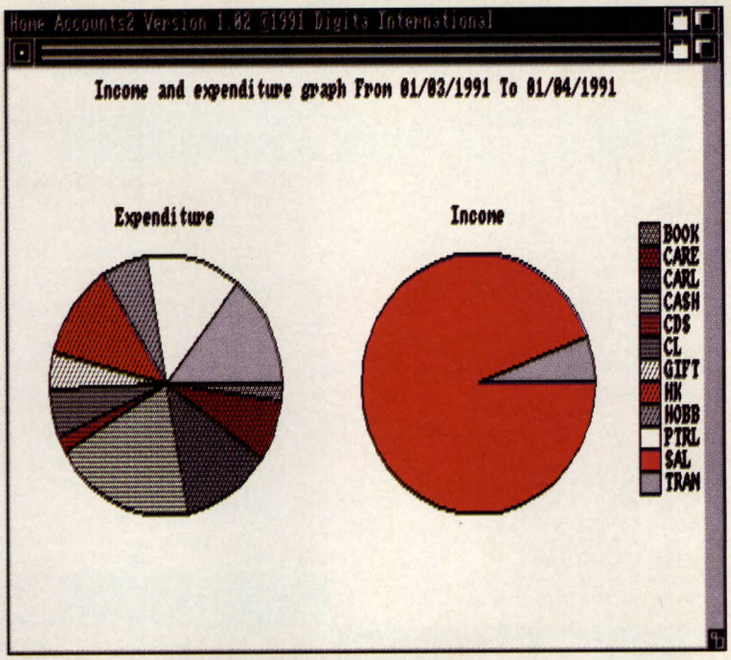
Short of cash? You don't need to strike it lucky if you're in control of your personal finances. Pat Kelly explains how to be popular with your bank manager.

Above and below: Financial reports can be generated for many items, and can be viewed on screen, or via a printer.





This NatWest account shows both unreconciled and reconciled (*) transactions, but only the latter is implemented into the balance.

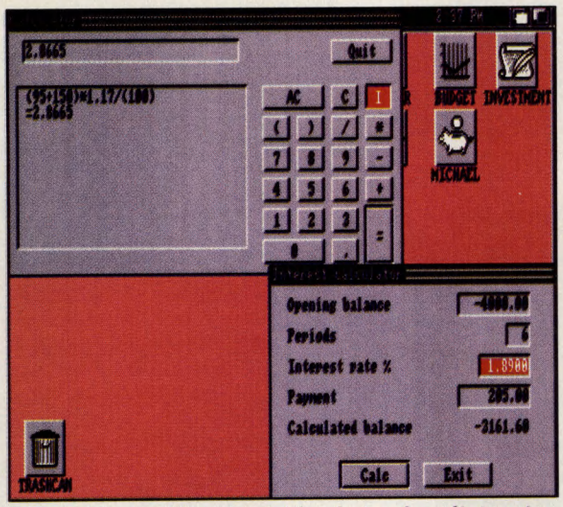


These are two of the various graphical charts which offer visual analysis of data.▲▼

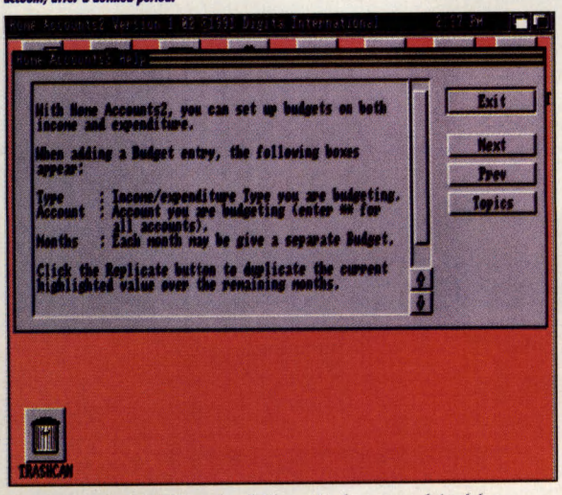
Statements are available for each account and are useful for showing reconciled and unreconciled transactions in addition to the current balance. These statements can be shown on screen or can be printed out from within the reports menu which supplies output of the file in a number of formats from listings to pie-graphs, from screen, file, or printer.

It is worthwhile to note that although Home Accounts 2 is superb at financial accounting on a day-to-day basis, it has its limitations as a home finance package as there is no apparent facility to produce financial projections. Most people find "what if?" scenarios the most interesting and helpful financial exercise. I was disappointed to learn - from Digita's support line - that this could only be done through the budget report facility and, even then, it wasn't exactly easy or suitable. I had to re-define all my regular transactions, such as my salary, as a budget income. I didn't get the detailed report I was expecting, but I did get a monthly financial budgeted forecast. Home Accounts 2 does not pretend to be a home user's spreadsheet, but such a facility would have added an extra dimension to the package.

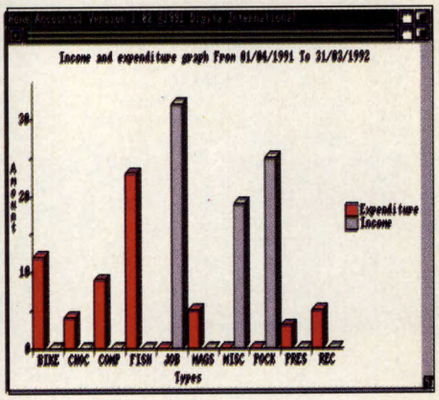
Flexibility is the key to Home Accounts 2. There is great ease in the way in which the program runs, data input, and parameters set - almost any data/parameter may be altered or added after a file has been initialised. Documentation is very good and the user friendly HIP offers extensive on-line help. Accounts are easy to produce and output options are good, but detailed financial forecasts cannot be produced. While for more robust financial enterprises a spreadsheet is probably a necessity, if all you want to do is keep computerised accounts, then Digita's new version of Home Accounts is ideal.



The interest calculator is useful for calculating the balance of savings or loans, taking interest into account, after a defined period.



The extensive on-line help facility can be called from within the program and gives help on absolutely every function.



Price: £54.99
Contact:
Digita International, Black Horse House, Exmouth. EX8 1JL.
Tel: 0395 270273.
Fax: 0395 268893.

Transactions and Budgets

In real life, and in Home Accounts 2, money either goes into or out of an account, and it does so at a specific date. Each money movement is called a transaction, of which there are two types. The first is a regular transaction which could be a salary - going in, or a mortgage - going out, or a standing order, such as a bank loan. The frequency of regular transactions can be set with a start date and a finish date - HA2 will calculate the dates when each transaction will occur. Manual transactions are keyed into HA2 by the user and are irregular spendings or incomes, such as a car repair, gifts, new clothes, pools win, etc.

Budgets are not transactions, they have no real value except for comparisons with real spending. Each month all the transactions for each item are compared against the budgeted figure.

AMIGA PD AMIGA PD AMIGA PD AMIGA PD AMIGA PD AMIGA PD

DEMO'S

A225 Horizon Megademo/All Time Classic
A288 Bart Simpson Demo/Decay
A296 Phenomina Enigma Demo
A304 Amy vs Walker/E. Schwartz, 1 Mb
A310 WWF 'Wrestlemania' Slideshow
A329 Sickness Simulator/Hilarious!
A331 Anti-Lemmings Demo/2 Disks, 2 Mb
A334 Batman the Movie/E. Schwartz, 1 Mb
A336 Shuttle-Cock Anim./E. Schwartz, 1 Mb
A338 Mr Potato Head II/Chris Hill (1Mb)
A342 Plasmutex 91/Excellent Plasma Demo
A343 Virtual World Demo
A352 Trackball Animation (1Mb)
A360 Digital Innovation/Anarchy's latest
A362 Defjam/Pixel Nation Demo
A367 Unicycle Anim (1 Meg)
A372 Terminator 2 Slideshow (2 Disks)
A373 Altered Perception/Chris Hill
A384 Kick Boxer Demo/Hacktrick
A395 Alpha Omega/P.M.C.
A399 Baywatch Slideshow
A400 Mr Potato Head 3/'Circus Act'
A401 IBB 'Mangad' Megademo

SOUND

S001 Sound tracker. Music programme (needs ST-01)
S003 Games music creator
S004 Med music programme V.3.0
S006 Med V3.11/1 meg only
S010 Protracker 1.1B (needs ST-01)
ST-01 Instrument disk for Sound/Protracker
ST-02 Instrument Disk for Sound/Protracker/Med
ST-07 Speech samples for Soundtracker

EDUCATIONAL

E001 Education Disk I (Age 5+)
E004 Education Disk 4 (Age 5+)
E006 Learn and Play (Age 4/5+)
E008 Colouring Book (Age 5+)
E011 Learn German (11 to Adult)
E012 Spanish Tutor (11 to Adult)

GAMES

G001 Agatron Star Trek/1 M/2 disks/2 drives
G033 Drip/Arcade Game
G037 Twintris/2 Player Tetris
G044 Chess/superb version
G048 Seven Tiles/Speedball Game
G049 Eat Mine/Emerald Mine Game
G051 Dragon Cave/Puzzle Game
G052 Pipeline/Pipemania Game
G059 Wheel of Fortune/TV Quiz Game
G060 Quizmaster v1.0/A. Chetham
G061 Property Market/Trading Game
G063 Paranoid/'Arkanoid' type game
G064 Game Cheats/Codes + Solutions
G067 Mental Image Game Disk 1
G068 Casino Game/Compilation
G069 Space Games/Compilation
G069 Space Games/8 Games
G071 Castle of Doom/Adventure
G072 Speccy Emulator & Games
G073 Megaball/Breakout Game
G074 Adventure Writer
G076 Star Trek Shoot-em-up
G077 Simpsons Shoot-em-up
G078 Balloonacy/Arcade (1Mb)
G079 Wizzy's Quest/Arcade (1Mb)
G080 Popeye LCD Game
G081 Cubulus/'Rubic' Type Puzzle Game
G082 Downhill Challenge/Ski-ing Game
G083 Destination Moonbase/Lunar Lander Game
G084 Fruit Machine Simulator/Amos PD
G086 Pair-It/Amos PD (1Mb)
G087 Jeopardy/Risc Style Game (1Mb)
G088 Master of the Town/Target Practice
G090 Five Alive/Compilation 5 games
G091 Computer Conflict/Shoot-em up
G092 Quiz Master 2 Professional
G094 Star Trek - The Game (1Mb)2disks/2drives
G095 Zeuz/Puzznic Game
G096 Tennis/3-D Perspective (1 Mb)
G098 Bionix/Shoot-'em-up
G099 Emerald Mine IV/Boulderdash game
G100 Mech Fight/Sci Fi RPG Game
G101 H.A.C.L. Solutions/Games Hacks
G103 Pom-Pom Gunner/Shoot-em-up
G107 Monopoly/English version
G108 Nine Lives/Compilation - 9 games

MUSIC

M002 Groove is in the heart
M016 Feel The Rhythm
M017 Tecnotronic Mega Mix
M021 Pet Shop Boys/Suberbia
M025 Digital Concert 3
M028 Digital Concert 6
M033 808 State remixes
M038 100 C64 tunes
M040 Simpsons Do the Bart man. 3 disks
M042 Betty Boo 2 discs
M044 Miami Vice Remix
M062 Phenomena Music 1/18 wicked tunes!
M067 Madonna Vogue/Slides & Music
M068 Madonna Spanky
M071 D Mob music 2
M076 Synth Music 6/3 tunes inc. Oxygene
M080 Janet Jackson/Rhythm Nation 1814
M085 Amazing Tunes II/3 Disks (1Mb)
M087 Vocal Attack 2/Get It Up Remix
M089 Computer Game Music Disk/Compilation
M090 Vocal Attack 3/2 disks - 1 Mb
M093 EON Music Disk/8 tunes
M096 Intruder Music Disk/Vanish
M097 Technomania II Music Disk

UTILITIES

U001 Amibase Excellent Database
U003 IFF Fonts and surfaces for DTP
U007 Dope intromaker
U008 Space writer Demo creator
U009 RIM relational database
U010 Visicalc spreadsheet
U011 Jazz bench work bench replacement
U012 North 'C' compiler
U027 Emulators/C64 & Atari ST
U030 Bank N/Accounts Programme
U061 Master virus killer V.2.1 kills 124 viruses
U065 M-cad. Computer aided design
U067 Crunchers compilation inc. power packer
U070 D-copy backs-up protected disks (most)
U073 Mandalbrot. PD compilation
U099 ABPD utility disc. 30+ Utils.
U109 Darkstar utilities 3/Compilation
U120 SID/CLI utilitity
U121 Rippers/Instrument/Sample Rippers
U124 C – Light/Ray Tracing package
U125 Red Sector Demo Maker
U129 PDC 3.33/Complete C Compiler
U130 Black Tiger Star Utilities
U135 'C' Manual/latest version (4 disks)
U139 Fonts for Red Sector Demo Maker
U140 Wordright/WP & Spellchecker
U147 Drivers/Hard to obtain printer drivers
U151 PCQ v1.1c/Pascal Compiler
U152 A64 Emulator V1.01/C64 Emulator
U155 Rainbow Writer/Demo Creator
U158 Trilogy back up disk/Copy compilation
U160 Delta Crew Virus Killers/Compilation
U161 Mandelbrot Animator V1.2
U162 IBM PC Emulator/2 Disks
U163 Typing Tutor
U164 ABPD Comms Pack/Ncomm and JRcomm
U165 Door to Door/Route planner
U167 Insanity Tools1/203 utilities
U175 TSB Vector Designer V1.1
U176 Vector Ball Editor V1.0
U177 RSI Demo Maker Music Disk 1
U178 RSI Demo Maker Music Disk 2
U180 RSI Demo Maker Utility Disk
U218 TV Graphics/Video Graphics Clip-Art
U219 TV Fonts/Video Fonts Clip Art
U220 ClipArt for DTP

No Minimum Order
Speedy Service
100s More Disks Available
Send 75p for Catalogue Disk

95p PER DISK

FREE Slimpack Box with every 10 disks ordered

HARDWARE

QUICKSHOT PYPHON 1 TURBO III £9.99

Features
Ergonomical Design
High Speed Auto fire Capability
4 foot cable
4 position operating mode selector
Multi System Joystick

QUICKSHOT MAVERICK 1M £11.99

Features
Revolutionary New Design
Multi System
2 Fire Buttons
High Speed Auto Fire Option
6 Deluxe Micro Switches
2 Six foot cables for 1/2 player selection

QUICKSHOT FLIGHTGRIP 1 £9.79

Features
Multi System
2 Fire Buttons
High Speed Autofire Selector
4 Foot Cable
8 Direction Thumb Control Pad.

KONIX NAVIGATOR £13.99

Features
Ergonomical Design
Solid Steel Shaft
Fully Micro Switched
Amiga, Atari, MSX Compatible
Autofire

KONIX SPEED KING £10.99

Features
Fully Microswitched
Fits your hand to give natural grip
Solid Steel Shaft
On/Off Autofire switch
Amiga, Atari, Amstrad, MSX compatible.

COMPETITION PRO 5000 £10.99

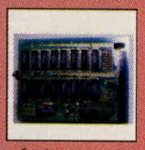
Features
Robust Steel Shaft
Fully Microswitched
Rubber Return
Dual Fire Buttons
1.5M Cable

ZIP STICK SUPER PRO £11.99

Features
12 Month Guarantee
Steel Shaft
A.B.S. Case
Microswitched
Triple Fire Action
High Speed Autofire

ACCESSORIES

Deluxe Mousemat.....£2.99
Amiga 500 Dustcover.....£2.99
40 Cap Storage Box.....£4.99
80 Cap Storage Box.....£5.99
120 Cap Storage Box.....£6.99
3.5" Disk Drive Cleaning Kit.....£2.49



1/2 MEG UPGRADE CARD

Features
16 Chip Configuration
Socketed Chips
High Quality PCB
Direct Replacement for 501 unit
Non Clock version.....£24.99
Clock Version.....£28.99

SPECIAL OFFER

10 QUALITY
BRANDED BLANK DISKS
135 TPI INC LABELS
£4.99 + p&p

HOW TO ORDER

Cheques & PO's Payable to ABPD. Send order requirements and your name and address to:

ABPD

Dept AUI
45A Alma Road,
St. Albans,
Herts AL1 3BJ
Telephone:
0727 833363

PD disks: UK add 50p to total order, Europe add £1.00 and World add £2.00
Hardware & Accessories: UK add £2.95 to total order, Europe add £4.95 and World add £6.95.
Personal callers welcome

GVP IV24

The 24 bit graphics race is on! Some of the competitors have gained a head start, but look! Here's GVP just on the starting line. Gary Fenton raises his binoculars.

Just as I was half way through writing my review on GVP's first and foremost 24 bit graphics card, we got a call from the UK distributors, SDL. They informed AUI that they were expecting a new ROM chip for the IV24 board and some new software too. The new version of the hard/software apparently irons out some of the quirks we found on the version we were reviewing. Other features are also included to speed up the screen refresh rate. To do justice to the board we needed time to test it properly, so we will bring you a full review on the latest revision next month. But just to wet your appetite in the meantime, here's a run down on what you get for your £1799.

The IV24 is a true 24 bit graphics board that does the job of 4 pieces of kit. Being a 24 bit board, it has a palette of 16,777,216 colours (some people called them shades, but that's a whole argument itself). Having this many colours means that you get true colour, and it's impossible to notice the difference between a 24 bit picture and a real photograph! An image of this kind requires plenty of memory and disk space. For example, a 640 x 512 picture with 24 bit colour will take up (640*512*24/8) 984K of disk space! Using overscan will take up even more space. Thank God for the Amiga's IFF graphics standard!

To get images worthy of displaying on the IV24 you will need a top quality video digitiser. Oh no you won't, because GVP have bolted one on to the IV24 board! It boasts that it can grab a picture in 1/50th of a second and in full 24 bit colour. Because the board has connections for a RGB video source, the images you see via the board are indistinguishable from the original!

PIP

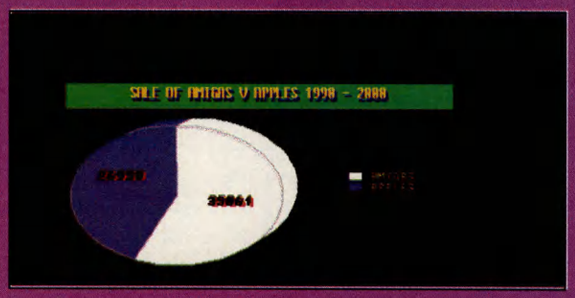
If it sounds good so far then you will be very impressed with a most desirable feature called Picture in Picture, or PIP for short. PIP will open up a window on Workbench and pipe in video pictures in real time to the window! The window has all the features of an ordinary Workbench window, so you can resize it and drag it around the screen. Imagine all the uses of a real video picture on your computer screen. You could be typing a letter in Protext while watching a James Bond film on the same screen! Further more, if there's a picture you particularly like, you can grab it and save it to disk at the touch of a hotkey for future use. If that has not impressed you then how about inverting the screen so Workbench appears in a small window surrounded by full screen live video! The really smart thing is that the tiny Workbench screen is still usable, if you can see your mouse pointer, that is!

The fourth and final main hardware feature is the dual genlock built in to the IV24. After all, what use is a computer with life-like images if you can't record them onto video tape? Just as many Amiga genlocks do, the IV24 will superimpose live video behind graphics. Imagine what you can do with 24 bit graphics on your video productions.

The success of any new hardware depends on the quantity and quality of the software supporting it. GVP have thought long and hard about that and have bundled 3 big name titles with every IV24 sold. These names should sound familiar; Caligari, Macro Paint, and Scala. Having these packages available and free with the IV24 should help to make GVP's baby sell. Make sure you're reading AUI next month for a full and detailed review of the latest revision.

TEST DRIVE

CHARTS AND GRAPHS



Difficult text or dull figures can be made understandable, even exciting with the help of graphic interpretations. Graham Baldock examines a program that lets you give your presenations that extra visual impact.

By its very nature the presentation of business data can be very complex, which was why when I opened the manual of Charts&Graphs I was pleasantly suprised to see how user friendly it was.

All the steps to producing your first chart exercise are laid out in a series of 6 easy to follow Tutorials, which take the user from importing data, to adjusting colours, to defining the chart set up, right through to loading in customised IFF images and backgrounds.

There are four different chart types, Line, Column, Bar and Pie. You can even make the Pie explode! Very messy. A spreadsheet which opens on the screen by default is where all the data you hold is entered. For example, you could type in 'YEARS' on the 'x' axis and 'VALUES' on the 'Y' axis, enter the figures, click on the type of chart you want from a pull down menu and the chart is automatically drawn for you to full screen size. The default colours are wishy washy pale greys and blues, which you will soon want to change if you are printing out in colour. The maximum colours available is 16, which should be enough for anyone unless you try to import complicated backgrounds.

Once the basic chart is on the screen, the fun starts. If you want a chart legend and a title, the 'resize' gadget will reduce, elongate or generally squash your graph into any shape required to allow room on the screen for your other imformation. The title and legend can now be entered using available fonts. Grid lines can be placed on the axis, boxes drawn to highlight text.

Up to 100 different patterns can be placed on individual pies or columns which are useful when working in black and white and generally the whole graph can be tailor constructed to suit the job in hand. In fact, you can even make charts which are simply text and IFF images only.

The three dimension facility is probably the most fascinating and useful graphic tool in this program. One click and a two dimensional graph is transformed into a living structure! Three sliders arranged around the borders of the screen alter the depth, angle and viewpoint of the columns, making the options endless.

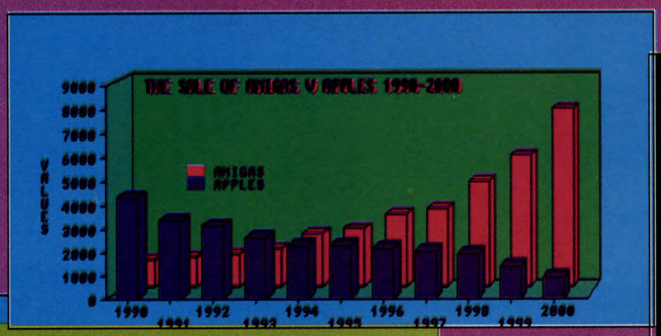
> *The three dimension facility is probably the most fascinating and useful graphic tool in this program.*

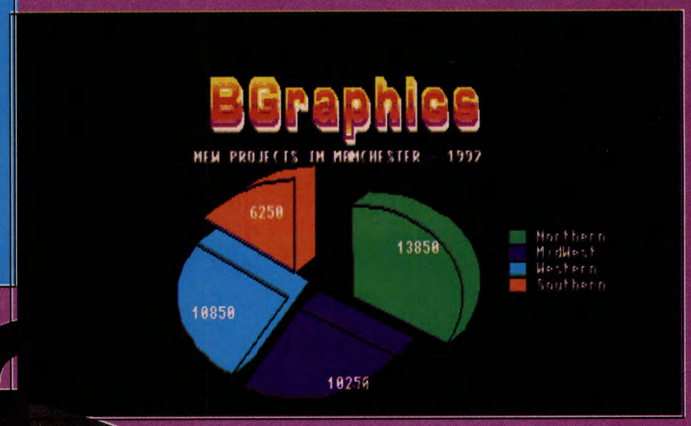
Charts&Graphs is not a paint program, but has available the ability to draw boxes, arrows etc.

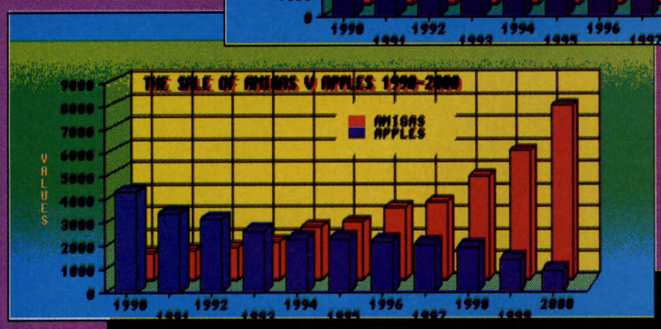
One aspect of C&G which could be very helpful is the ability to import ASCII files from existing spreadsheet data and in turn to export files saved by C&G in the same mode.

Charts & Graphs uses a tremendous amount of chip memory. As the displays use over 15000 memory locations, it is in your own interest, if you are considering buying this package, to upgrade to at least the 1 Meg Fatter Agnus chip, especially if you want to be creative in your chart making.

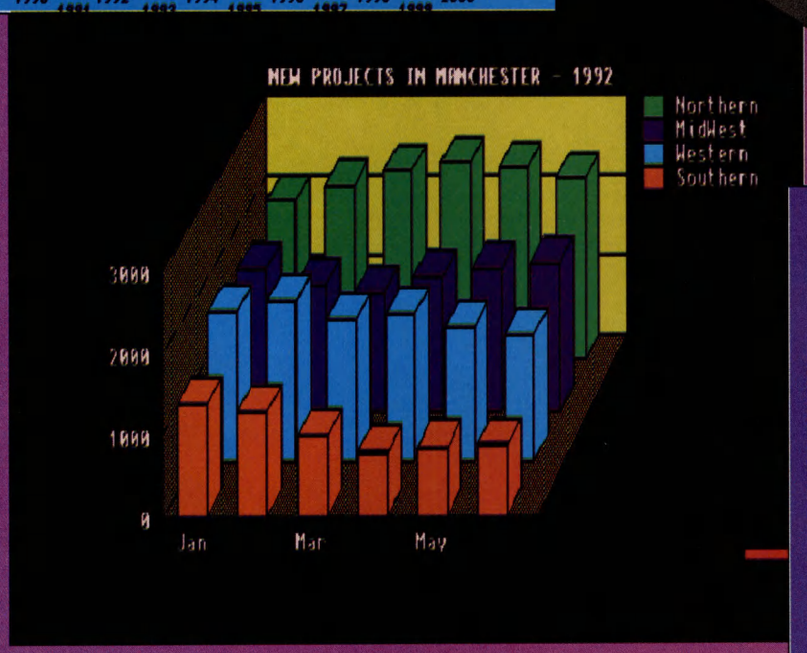
To help memory management there is

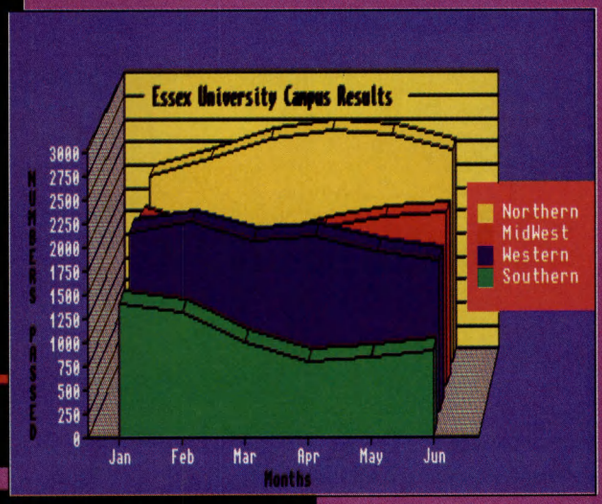






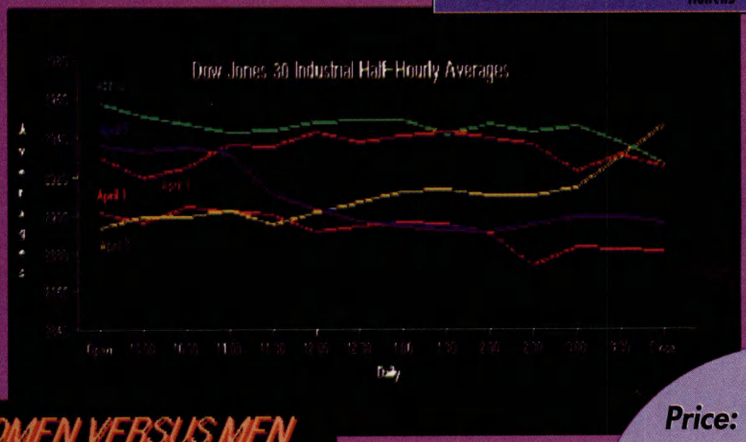
> *Once the basic chart is on the screen, the fun starts*





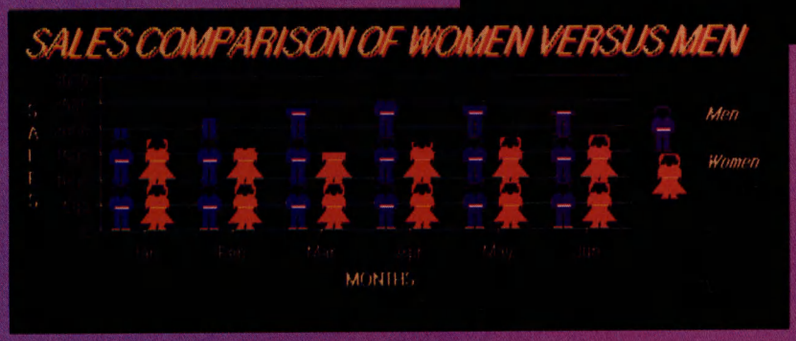
a handy strip at the top of the screen displaying chip memory, largest display memory block availability and total memory.

As I used to have to prepare artwork by hand for graphs, this software should prove invaluable, only time will tell. One word of caution though, SAVE your work often, as the program had a tendancy to crash on me without warning, sometimes at the most awkward moments. Graphicuss Interruptus can be most annoying...



There are four different formats for chartmaking Line, Column, Bar and Pie (Exploding Pie as well!)

Some examples showing the same information treated in four different ways.



Price: about £30.00

Contact: Technical Resource Systems Laboratory PO Box 94263 Las Vegas, Nevada Tel: 89193-4263

KNOCK DOWN PRICES!

Subscribe to Amiga User International for 12 issues and we will knock £5.00 off the subscription rate!

Subscribe for 24 issues and we will knock £11.00 off the subscription rate!!

WHAT ARE YOU WAITING FOR? DO IT NOW!!

Fill in the coupon below and send it with your remittance to: MSM Subscriptions Department, Lazahold Ltd., P.O. Box 10, Roper Street, Pallion Industrial Estate, Sunderland SR4 6SN. (the first issue of a new subscription to be delivered will be one or two issues after the one you placed your order in.)

Please send me my 12/24 month subscription to AUI at the special discount rate of £ _____
I enclose my cheque/money order for £ _____ made payable to MCPC Ltd or debit my Access/ Visa card. No. _____ Expiry date _____
Name _____
Address _____
_____
_____ (Please enter postcode to ensure prompt delivery)
Signed. _____ Date. _____ AUI 0292

UK £30.40 12 mths £59.80 24 mths	EUROPE £53.20 12 mths £105.40 24 mths	REST OF WORLD £75.00 12 mths £149.00 24 mths

Overseas rates include Airmail service

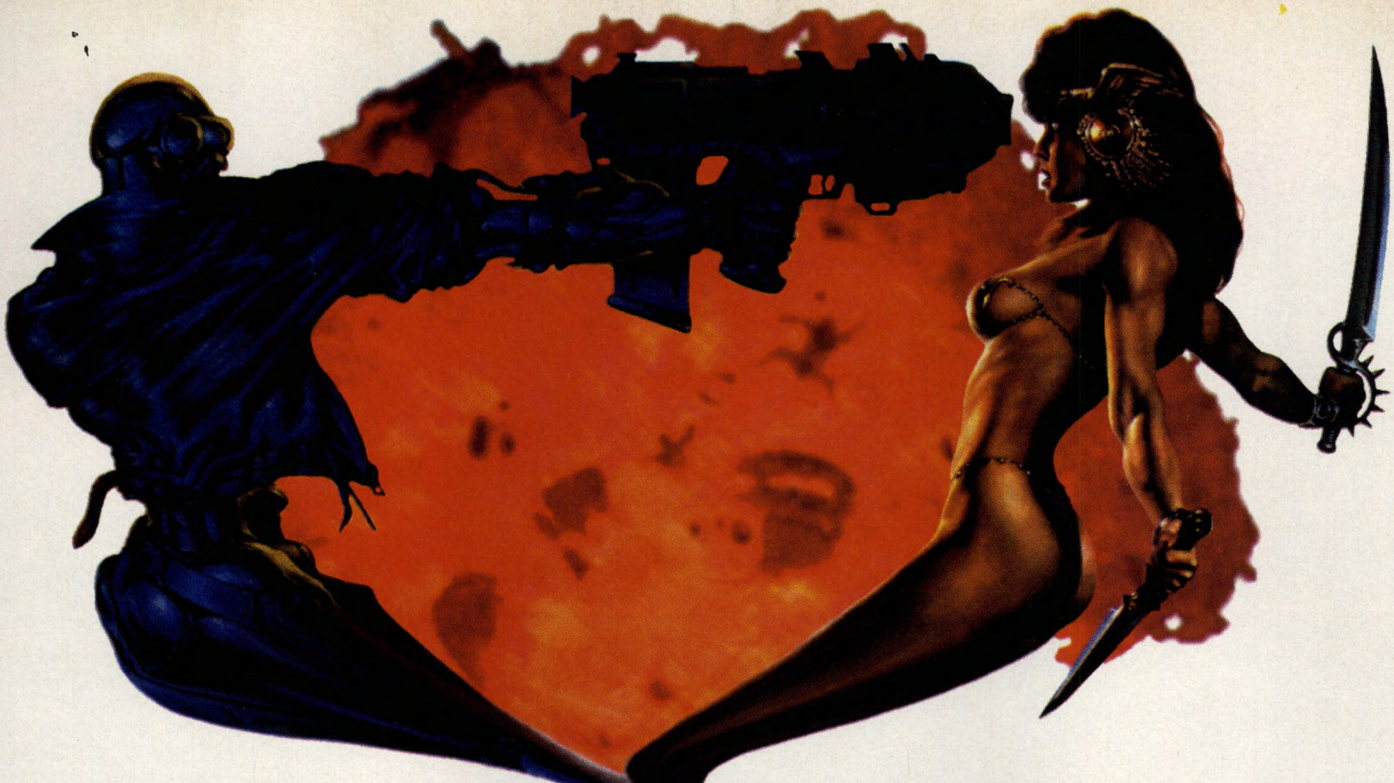


Image Power

Atari/Amiga Handheld Scanner

Available for the Commodore Amiga and the Atari ST range of computers, the Naksha A500 Scanner features switchable resolution between 200 and 400dpi, 32 grey shades and adjustable contrast.

Every Scanner comes complete with Express-IT! Software, an image utility which allows you to save images in formats which suit your favourite packages.

£99 or less inc. VAT
from all good computer shops

The ultimate games machine deserves the ultimate mouse.

The Naksha Upgrade Mouse is silky smooth, operating at a high 280dpi resolution. Supplied with Mouse Mat, Pocket and ***FREE*** Operation Stealth. No cables - no fuss. Simply plug in and go.

Naksha

Naksha (UK) Ltd., 29 The Wharf, Warrington WA1 2HT
Tel: (0925) 56398 Fax: (0925) 574375

E & O E Prices subject to change without prior notice
Trade Marks and Registered Trade Marks are acknowledged
Joe Pineapples copyright © Fleetway Publications 1991.

TEST DRIVE

Molecular Graphics

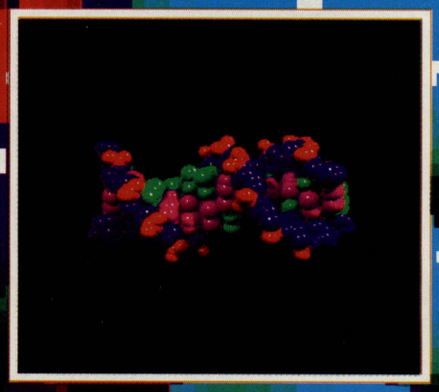
For the Amiga user who has everything - a molecular graphics simulator! Mike Nelson takes a fantastic voyage into the microscopic universe.

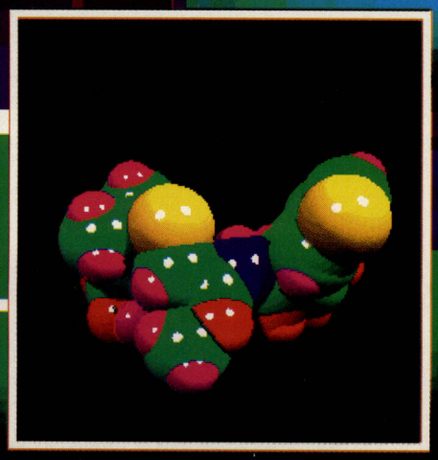
Ever wanted to unravel the intricate beauty of your kid brother's DNA, or maybe see exactly what the LSD molecule looks like to a brain cell (before it gets blown away)? No, I thought not. But now you can examine molecules, usually too small to be seen with a decent microscope, without having to carve up your brother, drop highly hallucinatory substances or even leave the comfort of your armchair.

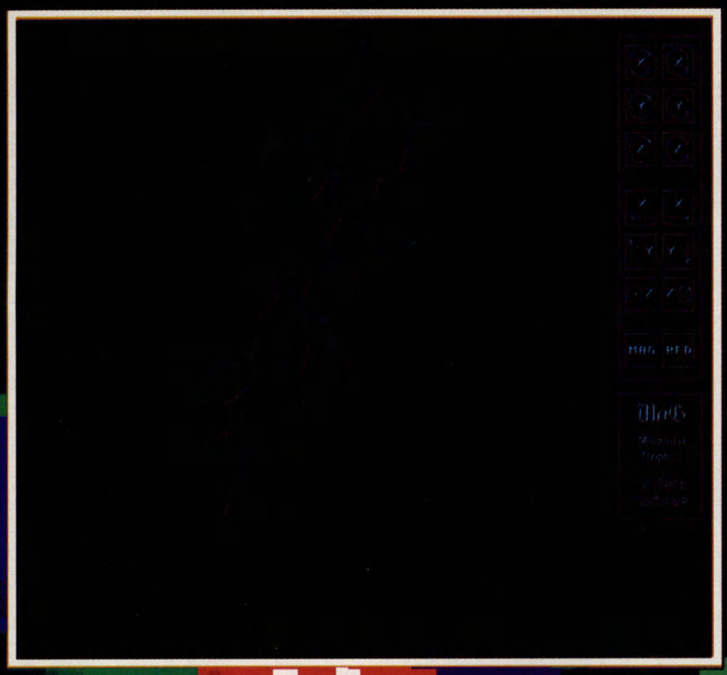
MoG is a new release from SciTech Software who also supply the graph plotting program, AmiPlot which we reviewed in November *AUI*. Aimed squarely at professional chemist and biochemists, MoG is also potentially an excellent teaching tool for A-Level or undergraduate students of chemistry and biology as it allows you to build complex molecules from basic components and visualise the effects in three dimensions on screen. Of course, virtual reality has not yet hit the world of molecular graphics, but that need not stop you rotating around the three axes, need it?

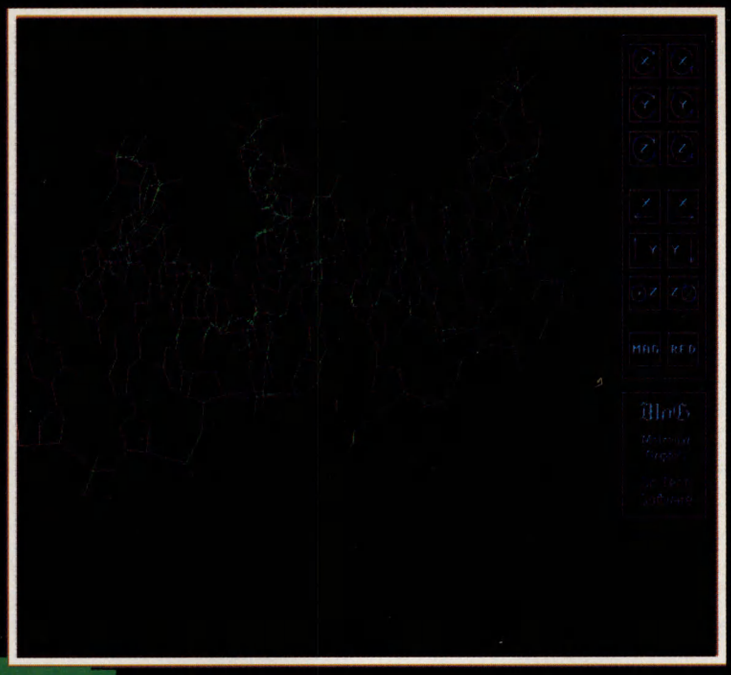
> *You can leave your Amiga churning out wonderful pictures while you do something more relaxing like sleeping.*

Firstly, the system requirements; MoG requires at least 1 Mb, but is best with 1.5 Mb; the usual expansions of hard drive and accelerator will help as there is a lot of serious number crunching and disk access involved in building molecular graphics. Installation is mercifully easy using the script supplied on the disk, and the version supplied works only in interlace 16 colour mode under releases 1.3 and 2 of the operating system. Along with the MoG software itself comes a pile of useful PD utilities to assist in printing your molecular masterpiece, and also some conversion programs.









The Main Program

MoG is a pretty complicated program to use, even if you understand the principles which govern the shapes of molecules in space. Getting to grips with all this is taxing enough without worrying about meaty stuff like sussing out how proteins are fitted together. MoG will display a molecule in "stick insect" form and allow you to rotate it in (almost) real time, depending on complexity, about any of the three axes, and also alter the size and location on screen. You can easily alter a number of the parameters controlling the speed of rotation and colours used. A pseudo-3D effect is produced by using light and dark colours as depth cues, and it works quite well. Also of potentially great use to biochemsists is the ability to get MoG to measure distances between atoms and calculate bond angles or torsion values. Such information can be used to manufacture so-called "designer" drugs which takes a lot of the guess work out of pharmaceutical development.

How does MoG know what to display? Even a sociology student will know that DNA is not a simple molecule to describe to a computer, and biochemists will understand the painstaking research which generates thousands of chemical bond angles. This is how the system works, and MoG can read several text file formats which are commonly found in biochemistry so this should not be a problem, but not many PD libraries keep a stack of data files for antibody molecules!

> *A pseudo- 3D effect is produced by using light and dark colours as depth cues, and it works quite well.*

Most people will find MoG useful for building their own organic molecules from the fragments provided in the package. This is not a particularly easy process, however, and you have to know a fair bit about basic A-Level chemistry to get anything out of the whole business. The manual gives an example of adding an -OH group to benzene to produce Phenol (most of the way to the gargle juice, TCP, incidentally), but once you get used to manipulating the display, you should be able to produce some esoteric renditions of heroin or cocaine, if you can find the formula! (Answers on a postcard or IFF file...)

Dr Martin, the author has incorporated a simple but effective scripting language so you can set up a whole batch of molecules to render. This means you can leave your Amiga churning out wonderful pictures while you do something more relaxing like sleeping.

Conclusion

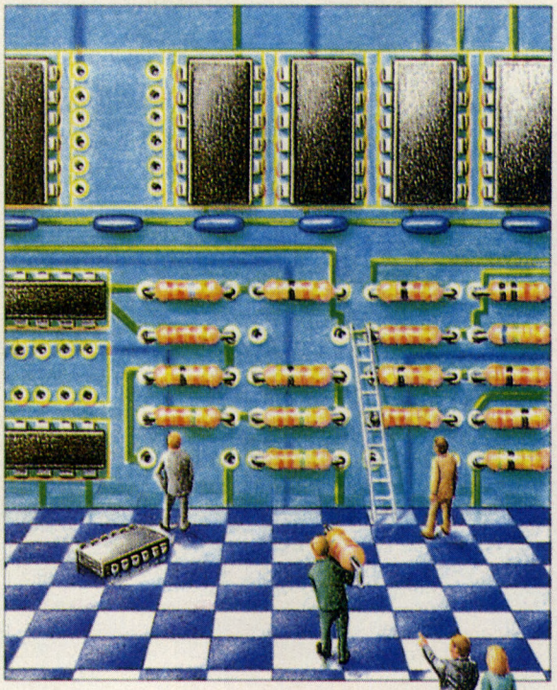
There are a few minor bugs in the current version, but SciTech are aware of them and free upgrades will be provided up to release 1.1. I feel the package would benefit greatly from some more examples likely to be useful in teaching biochemistry, especially of different classic protein conformations as it may be difficult for people to get hold of the required data.

MoG is a professional tool which really shows the Amiga to be in a class of its own for doing graphics work. It is an impressive piece of software which will not appeal to the masses, and this is reflected in the price. Substantial discounts make MoG appealing to schools and higher education establishments alike, and it is a robust program which performs very well indeed.

TOM	123	C2	A A	6	12.231	19.460	11.276	1.00	-1.00		2BNA	21
TOM	124	N3	A A	6	11.655	18.339	11.782	1.00	9.41		2BNA	21
TOM	125	C4	A A	6	12.530	17.314	11.645	1.00	-1.97		2BNA	21
TOM	126	P	T A	7	7.569	13.436	11.946	1.00	10.40		2BNA	21
TOM	127	O1P	T A	7	8.186	12.280	11.163	1.00	2.37		2BNA	21
TOM	128	O2P	T A	7	6.144	13.377	12.376	1.00	-2.04		2BNA	21
TOM	129	O5*	T A	7	7.747	14.826	11.189	1.00	1.64		2BNA	21
TOM	130	C5*	T A	7	7.197	15.997	11.812	1.00	-6.35		2BNA	21
TOM	131	C4*	T A	7	7.427	17.139	10.876	1.00	-8.28		2BNA	21
TOM	132	O4*	T A	7	8.818	17.234	10.592	1.00	23.40		2BNA	21
TOM	133	C3*	T A	7	6.717	17.003	9.553	1.00	-10.22		2BNA	22
TOM	134	O3*	T A	7	5.566	17.050	9.517	1.00	3.82		2BNA	22
TOM	135	C2*	T A	7	7.787	17.366	8.522	1.00	1.40		2BNA	22
TOM	136	C1*	T A	7	8.932	17.926	9.354	1.00	-3.47		2BNA	22
TOM	137	N1	T A	7	10.267	17.554	8.844	1.00	-8.22		2BNA	22
TOM	138	C2	T A	7	11.005	18.561	8.403	1.00	9.16		2BNA	22

Contact:
SciTech Software, 23, Stag Lass, Ashtead, Surrey, KT21 2TD.
Tel: (0372) 275775
Price: £100 (£60 Academic), co-processor version £150 (£90), library £250 (£150)

Amiga Repairs



If something is wrong with your Amiga 500 or C64, who better to turn to than the National Repair Centre.

For all repairs to your computer, one low payment covers diagnosis, repair (including parts and labour) and delivery back to you.

The experience and expertise of our technicians ensures that your computer is repaired to a high standard at a low cost. And each repair will be carried out within 12 working days!

To schedule a repair, simply call Michelle or Julie on 0733 391234.

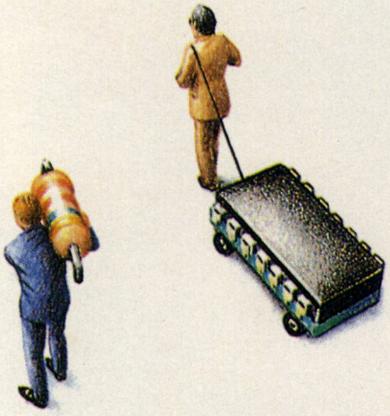
Please be ready to give your name, address, computer type, serial number and the type of fault, quoting AUI R 3/92.

The cost is £57.45 for an Amiga 500 and £47.45 for a C64. Payment can be made by cheque, postal order or credit card.

0733 391234

FMG House
Newcombe Way, Orton Southgate
Peterborough PE2 0SF

AMIGA REPAIRS



£57.45 COVERS ANY REPAIRS

NEWSFILE

The Way it is in . . . The Newsfile

Page 35
New Horizons CD-ROM Package
Quarterback 5.0 Upgrade
Digital Intergration's Budget Action
Chaney takes on a Virginal Europe

Page 36
Special Computer Devices for Special Needs.
Faster Laser Printer
Thinking Super Computer's Teraflop
Mario The Wrecker

Page 37
Speedy Inkjet
Don't Pocket Your Floppies
Motorola Holds Hands With Psion
Action Offers Epson's Latest

Page 38
Multimedia grows
Fractalpro 5.0
Action Offers Postscript-Compatible Colour Page Printer
"Quote of the Month"

Page 39
Microdeal,s New CDTV Products
The Plus of Emulation
Dr. T Launches Computer Quest
One in a Million - or Three.

Page 40
ICD's Price Cuts
Neuropro 1.0
Audio Engineer Plus II
Terraform and Makepath

Page 45
GVP's PC Emulator for the A500
Play Colourful American Football
Animates; Wedding Series
Easy Amos for Granny
Oxxi Launches New Network

Page 46
Rexx Plus Compiler
Colourpic Stars on TV
Animate The Real World
No A690 Trade In

Page 47
Poor Person's Thinker II
Polarion Developed!
Back-ground Bits 24
Dataflyer IDE
Portable Amiga Again?

Page 48
Grand Prize for Team Eversham Micros
Commodore's A1500 Plus
Play with the Miracle
Curlers in his Beard?
Your Upgrade for WB 2

Newsfile compiled and edited by Anthony Mael and Martin Witton.

NEW HORIZONS CD-ROM PACKAGE

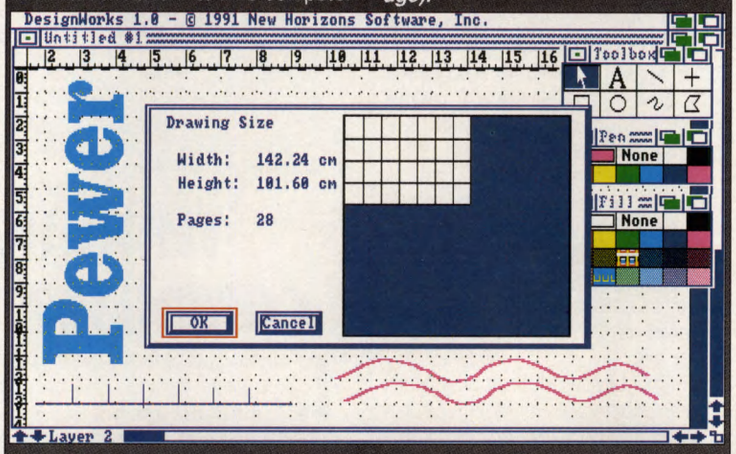
New Horizons software have announced that they have signed a licencing agreement with The Station, an Austin, Texas based dealer, to allow The Station to manufacture and sell a a CD-ROM package that includes ProWrite 3.2, Flow 3.0, DesignWorks 1.0, and ProFonts 1 programs on a single CD-ROM.

James Bayless, President of New Horizons told ***AUI*** "We see this all-in-one personal workstation, using Commodore's CDTV, as a unique idea with tremendous potential...The combination of a stereo CD and CD+G player with a complete computer system, including word processing and drawing programs installed and pre-configured on CD-ROM, is perfect for both student and first-time computer buyers".

The Station has developed a complete turnkey system using Amiga hardware. The 'CDTV Personal Workstation' called Odyssey, includes a CDTV unit, 1084S monitor, printer, external floppy drive, modem, mouse and keyboard, and a CD-ROM package containing Pro-Write 3.2, Flow 3.0, DesignWorks, ProFonts 1 and a large quantity of public domain software on a single compact disc.

The suggested retail price for the Odyssey is $1995 and includes New Horizons CD-ROM software.

Contact: The Station (512) 459 5440 (For information on the Odyssey) or New Horizons (512) 328 6650 (For information on the CD-ROM package).



CDTV software has new horizons.

Chaney takes on a Virginal Europe

Tim Chaney, who helped build up U.S. Gold to become one of the powers in global computer entertainment has been appointed by the growing Virgin games empire as their new Managing Director. He will, according to a Virgin spokesman, lead the company into a strong expansion into Europe in the Nineties.

During U.S. Gold's great period of growth in the mid-Eighties, Chaney played a leading role as Number Two in the organisation to Geoff Brown. He then moved on to develop Teck magik into a leading company in the console market. A popular figure in the computer entertainment industry, he has long been regarded as one of its most enterprising and talented personalities.

Virgin have needed a new leader for their computer games area since Nick Alexander, their previous boss of entertainment software, went with the Sega distribution business they sold last summer to Sega itself for the nice little sum of £40 million.

A spokesman for Virgin commented that it had recently built itself into a force in the computer games field but "The truth of the matter is that at the moment we have no real European infrastructure."

Chaney told ***AUI*** "Virgin is in a unique position in the video game business and is one of the few companies that have the power to be a real global force."

Virgin claims that its worldwide turnover is already over the £50 million mark but threequarters of that comes from the U.S.A.

QUARTERBACK 5.0 UPGRADED.

Central Coast Software, a division of New Horizons Software Inc., has announced a major upgrade to Quarterback, their hard disk backup utility.

New features include integrated streaming tape backup, compression, new backup and restore options, optional password protection and encryption, Workbench 2.0 and full AREXX support.

Improved features include increased performance, backing up to floppy disks at higher speed fast, a new and better user interface, the 3D look prevalent in today's contempory Amiga programs, the ability to backup or restore to up to four floppy drives, and greater file selection versitility.

Hardware requirements for Quarterback 5.0 are Kickstart 1.2 or later, and 512K of memory.

Suggested Retail Price is $75.00. Current registered Quarterback owners will be notified of upgrade information by post.

New touchdown for CCS Quarterback

DIGITAL INTEGRATION'S BUDGET ACTION

Digital Integration have announced four new Action 16 titles: Jupiter's Masterdrive, Sir Fred, Mystical and Rotox. In addition, Drift, a game of combatting crime in outer space, set in the future, will be released shortly.

Jupiter Masterdrive and Sir Fred are priced at £7.99, and Mystical and Rotox will cost £9.99. No "Drifting Details" yet.

Contact: Digital Integration Ltd., Watchmoor Road, Camberley, Surrey. GU15 3AJ. Tel: 0276 684959.

NEWSFILE

SPECIAL COMPUTER DEVICES FOR SPECIAL NEEDS.

The ability to use a computer has become an essential skill in today's technology dependent world. It presents less problem for able-bodied people than for people with disabilities who are unable to use a keyboard, or for people with visual impairments who cannot see a screen.

Think Ltd, set up just over two years ago by a group of teachers with an interest in helping people with special needs, have developed a range of software which combines with access devices to assist people with disabilities in using the Amiga.

"The Amiga's user interface provides the same style of screen no matter which software you use, so it is easy to learn. It's very attractive for anyone in education, as it means you really only need to learn one piece of software. and the Amiga's excellent graphics capabilities and in-built sound also make it very attractive," says Peter Talbot, Commodore's National Sales Manager for Education.

Easy Touch

Think Ltd markets a whole range of devices which make the Amiga simpler to use, whether it is for people with disabilities, or for teaching small children who have yet to acquire all the manipulative skills to cope with a keyboard.

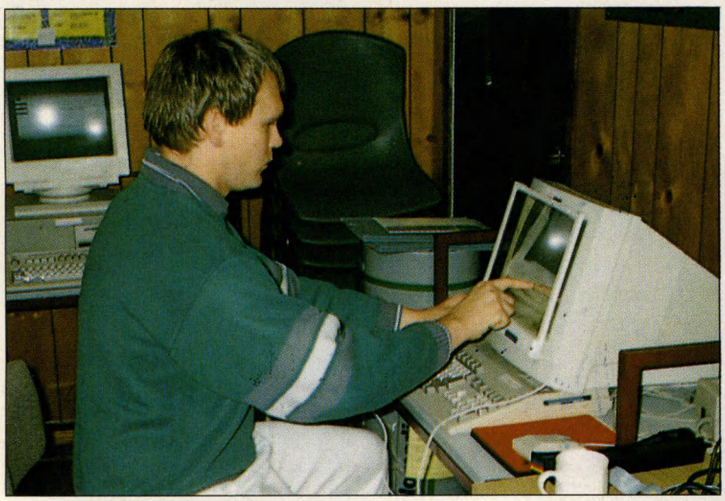
Chief among these is the Concept 2000 Keyboard. this is a large flat touch sensitive pad, divided into 128 or 256 cells on a grid, which allows you to transform a conventional qwerty keyboard. The Think software acts by fooling the Amiga that it is communicating with a standard keyboard and allows the board to be customised for each software application by using a library of standard A4 paper overlays. The Concept cells can be programmed individually so custom overlays can be prepared that will match any person's dexterity.

"The Concept Keyboard is ideal for people who find it difficult to coordinate their hands well enough to hit a small area on a standard keyboard" Think director Ian Black told ***AUI***.

The Touch Window is suited to people who find it difficult to grip a joystick or a mouse. When positioned in front of a standard computer screen, all Amiga software runs simply by touching it; away from the computer screen it can be used as a drawing tablet.

The Toucan Learning Tray is suitable for people with severely impaired mobility. This is similar to the Concept Keyboard, only this board works through clicking a switch to select an icon on an overlay, and not through the press of a keyboard.

Think Ltd works closely with Commodore's team of education specialists, and the products are also available through the Commodore Schools catalogue. Commodore's Regional Educational Consultants have been specially trained on the requirements of pupils and teachers in special needs education.



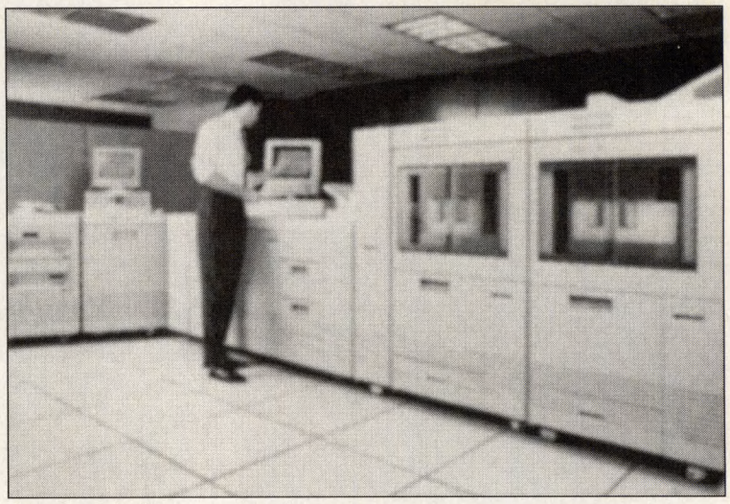
For those unable to hold a joystick, the Touch Screen makes for easier control.

FASTEST LASER PRINTER

Xerox have developed a 135-page-per-minute, high resolution 4135 printer with paper-handling capabilities claimed to be unmatched by any other laser printer in the industry.

The Xerox 4135 combines data, forms, multiple fonts and complex graphics and utilises a variety of paper sizes, stocks and combinations to produce professional-looking business documents at high speed.

Users can produce, in a single step, complete, collated documents ready for binding, including those with covers, tabbed section dividers, non-standard paper sizes or pre-sequenced sets, feeding up from up to four input trays, all selectable under programmed control. The printer's paper handling capabilities are useful, they claim for such jobs as guides, catalogues, manuals, forms and certain direct mail applications.



135 pages a minute...Will it print magazines next?

THINKING SUPER COMPUTER'S TERAFLOP

Thinking Machines, from Massachusetts, is, it claims, set to beat the Japanese market with its newly developed supercomputer based on the SPARC processor.

The CM-5 uses parallel supercomputing, where a large number of processors divide the work between them. It can offer a peak performance of over a teraflop, or one trillion operations per second, although, according to founding scientist Danny Hills, such a system would be prohibitively expensive.

The minimum system runs on 32 SPARC processors. The machine is revolutionary in that it will run standard Unix software whereas most supercomputers are designed for dedicated scientific use only.

The pricing for the Thinking Machines system starts at $1.4 million for a 32-node system, each of which contains its own SPARC chip. The Los Alamos National Laboratory in New Mexico has already ordered a 1.024 node system estimated to cost $25 million. Will they take a trade in for your old A1000 perhaps?

MARIO THE WRECKER!

Mario, the little video star of Nintendo's Mario Bros. game has come under criticism from a top US academic. Professor Provenzo's book, Video Kids, is based on his review of 47 Nintendo games for six months and states "The world of Nintendo is one of violence and mayhem...". But my dear Professor, so is the world of most computer games...(and the fantasy life of kids in general?)

SPEEDY INKJET

Citizen Europe have developed a new inkjet printer - PROjet, which they claim has the best paper handling and fastest print speeds in the inkjet market.

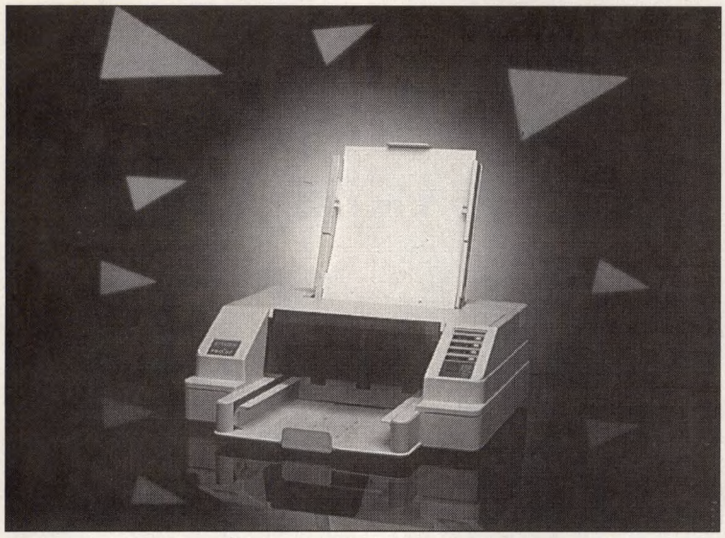
Offering a choice of either A4 cut sheet or continuous feed paper delivery, the PROjet also includes three print speeds as standard, the fastest being 360cps, and 300 dpi resolution for graphics printing.

The printer uses widely available consumables and the package includes HP Deskjet Plus emulation, three resident fonts; Courier, Times Nordic and Letter Gothic, and full landscape and portrait printing.

Options include a second automatic sheetfeeder and a tractor feed mechanism. The printer will also accept up to 14 HP compatible font cards and plug-in memory cards for soft downloadable fonts.

Sales of inkjet printers over the last four years have overtaken both the 9 and 24 pin pin dot matrix in the last four years in Western Europe according to IDC figures. Sales are set to reach those of 0-7 page per minute laser printer, according to Citizen.

Citizen's Anthony Odhams, told *AUI* "Inkjet printers have been particularly successful in the USA and in Germany, and they are now taking off in the UK as users are beginning to appreciate the technology because costs are affordable and quality of output high".



MOTOROLA HOLDS HANDS WITH PSION

The Mobile Data Division of Motorola, who make the custom chips for the Amiga have announced an agreement with Psion PLC, a UK based hand-held computer company, to manufacture and market the Psion HC hand-held computer with Motorola's RPM405i integrated Radio packet modem. This hand-held computer/modem combination, say Motorola, will allow real-time, two way, wireless communication between people on the move, home base and central computer databases.

Psion was apparently suitably impressed with Motorola's RPM405i, being small and low powered, whilst Motorola liked Psion's hand- held computer saying that it was reliable, rugged and easily configurable. In fact, the chairman of Psion saw it as an excellent match, with Psion traditionally suppling intelligent hand-held terminals and with the integration of the Radio Packet Modem, he forsaw an intelligent terminal in the making. A mutual admiration society no less!.

So what are the benefits? Psion told *AUI* that the main advantage of outfitting a mobile work force with computers that can communicate via data transmission over radio is increased productivity. Informational databases such as customer files, service records, accounting records, professional listings, etc., will be available at the touch of a key.

So why, we ask ouselves - and Commodore - can't it be done with an Amiga? And we don't get much of an answer. There are - and have been for years - rumours of upcoming Amiga portables. We will, as they say, believe them when we see them. But we can dream on ...of our favourite computer with an integrated and portable modem too...

DON'T POCKET YOUR FLOPPIES

At least, that is when you go through the security check at airports. As one representative from Calor Gas found to his cost, the gun dectector is specifically designed to find ferrous metals. To do this it creates a large, reasonably focused magnetic field, and hey presto the active ingredient on your floppy disk is ferrous. Besides revealing the contents of your pocket, it will harm the disks. It's safer therefore to carry your disks in your baggage, as the x-rays are very low power and in the wrong part of the electro-magnetic spectrum to harm the disks.

Such hazards are well-known to the Editor...He was once the proud possessor of the first disk to contain the legendary game, Sword of Sodan to leave the U.S.A. He was incautious enough to carry it past the metal detector at JFK Airport in New York. When the disk was loaded in the office Amiga in London - great expectancy but only a mass of corruption appeared... Heed the warning. It could happen to you and your disks!

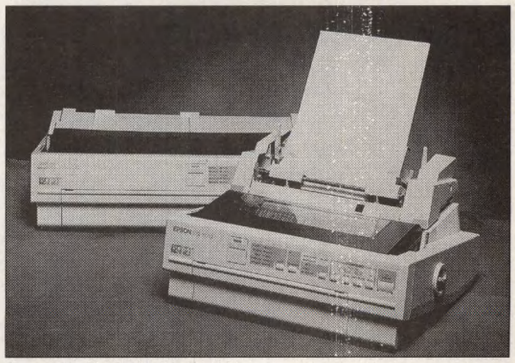
ACTION OFFERS EPSON'S LATEST.

Epson's LQ-570 and LQ-870, claimed to be the world's first impact matrix printers to feature scalable fonts, using the company's recently released ESC/P2 technology to provide Roman and sans serif fonts which can be scaled from 8 to 32 points.

These machines are also claimed to offer unusually flexible paper handling, with four different paper-feed paths and tractors that can operate in either push or pull modes. Other features include resolution of 360 x 360 dpi, ten internal fonts and an 8-KB buffer.

The LQ-570, offered by Action at £246.00 and the 132 column LQ-1070, at £364.00, print at 252 cps in draft mode and 84 cps in LQ mode. Where greater throughput is required, the LQ-870, at £419.00, and the 132-column LQ-1170, at £509.00, provide print speeds of 330 cps in draft mode and 110 cps in LQ mode.

Contact; Action computer Supplies, Alperton House, Bridgewater Rd, Wembley, Middlesex. HAO 1EH. Tel: 0800 333 333



First matrix with scaleable Fonts?

NEWSFILE

MULTIMEDIA GROWS

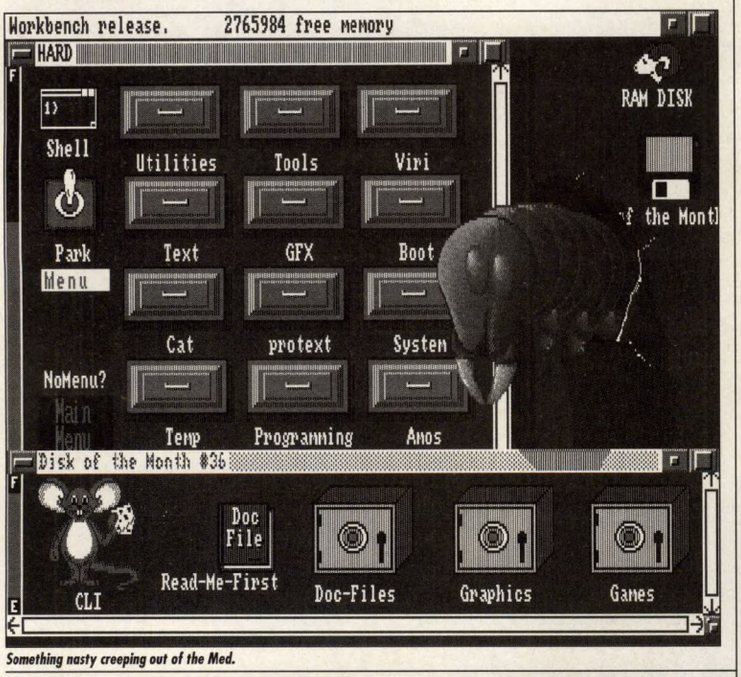
Multimedia is growing in influence in the retail industry, according to a report by consultants RMDP. According to the report, 12,000 interactive terminals are already installed in retail locations and public areas worldwide with over 3,000 in Europe.

BEWARE THE IDES (WELL THE 15TH AT ANY RATE) OF MARCH!

A lethal new virus has surfaced! The 'Maltese Amoeba' - (sounds pretty icky, doesn't it?) virus caused havoc on 1st November 1991, according to leading virus busters. The virus overwrites the hard disk so users have to format and rebuild from scratch.

Virus buster S&S International claims it has already modified its PC Anti-virus Toolkit to cater for the Maltese Amoeba.

The virus hides in memory and is set to trigger again on 15 March 1992. (The birthday of Anthony Mael's friend, Teresa... A bit too much of a coincidence, don't you think?)



Something nasty creeping out of the Med.

Quote of the Month

"Always wait for release 3.1 of any Microsoft product". Advice from a panelist at the recent U.S. Comdex show.

It's what might be called enlarged Windows of opportunity that software companies like to jump through... Microsoft's Boss, Bill Gates, of the schoolboy look and the billion dollar bank account, well knows that fashion demands, even in computing, that in business you just got to have the latest hot product on your desk to impress all and sundry. But, as was commented in February *AUI*, in computing, as in many other fields, it often takes more than one try to get it right. Software upgrades are profitable.. But the wise user may wait for the software, even, or especially, of Microsoft to get all those nasty bugs out. Ah, where are the days of Beta testing that meant something?

FRACTALPRO 5.0 - Firecracker of a Program!

FractalPro, has been released, and is, say MegageM, 2X - 35X faster. It is designed for 881/882/040 and has direct Firecracker support. (Doesn't all your software?)

FractalPro has over 100 24-bit modes, ARexx interface, centred Vista DEMs, smoother Tweens and counts up to 16384. In addition it has 24-bit hi-res IFF, negative colour mode, 4 new fractal types and all new 4.0 features too. ("Smoother Tweens"? That sounds very sexy!)

FractalPro spontaneously renders 24-bit IFF fractal pics to theFirecracker 24 board (now all is clear, isn't it?), if present, in up to 16384 colours (768x482 res.) and Amiga HAM screen in 256 colours. Firecracker is not required to make/save/load 24-bit images.(Thank goodness for that!).

Fractal Pro includes overscan version for Toaster/DCTV resolution and one for Firecracker.Yes, siree! PAL is available and all the motion features of 4.0, too (Even, say MegageM, in 24-bit).

FractalPro 5.0 costs $149.95.- about £90.00 Registered owners can upgrade for $60.00. about £40.00

MegageM say it requires math coprocessor (881 or 882) or 68040, and 2.5 megs ram and you'd better believe them.

Tel: (805) 349 1104.

ACTION OFFERS POSTSCRIPT-COMPATIBLE COLOUR PAGE PRINTER

It has a palette of over 35,000 colours, including 734 pantone-compatible colours, and a powerful 32-bit processor gives print speeds of one page per minute for colour and three pages per minute for mono.

The Colourmate PS is available in two versions: the PS/40, offered by Action at £3929.00 (MRP £5995.00), which has 4 MB RAM (expansible to 8 MB) and 17 internal fonts, and the PS/80, offered at £4599.00 (MRP £6995.00) which has 8-MB RAM and 35 internal fonts.

Both models have a 100-sheet A4 paper feeder, and offer parallel and RS232C/RS-422 serial interfaces.

The Action catalogue is free and offers discounts on all leading brands of computer supplies. There is a free telephone service.

Contact: Action Computer Supplies, Alperton House, Bridgewater Road, Wembley, Middlesex, HAO 1EH.
Tel: 0800 333 333.

NEC's Colourmate PS is a high performance, colour page printer which uses a licenced version of Adobe PostScript to provide compatibility with all leading software packages.

MICRODEAL'S NEW CDTV PRODUCTS

Three new packages for the CDTV have been launched by Microdeal.

Voice Master:- This package includes a microphone and interface for the Commodore CDTV player. The interface plugs into the rear of the CDTV using the Parallel printer port and requires no external power supply. These items can be used with any interactive CDTV programs such as Microdeal's Joky Karaoke, Voice FX or Asterix & Son from Eurotalk.

SRP £19.99 (U.S. 29.95)

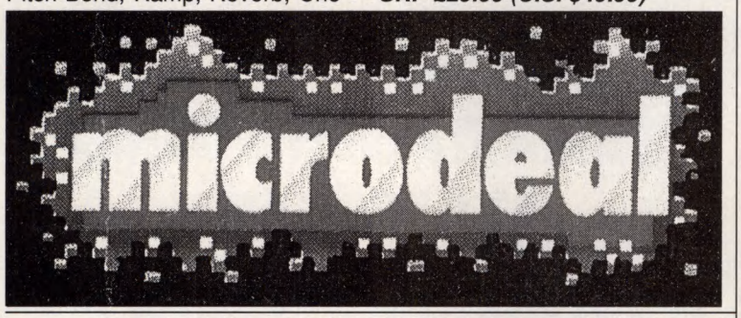
Voice FX:- This CDTV software product incorporates real time voice changing software to use with Voice Master. 11 different effects are available including Pitch Up, Pitch Down, Echo, Multiecho, Robot, Pitch Bend, Ramp, Reverb, Chorus, Reverse and Stereo Pan. Music CDs can also be played from the Voice FX software so you can sing along with your favorite artist.(Don't forget the neighbours like to sleep...)

All of the effects are adjustable so the degree of pitch change, echo etc. can be altered to suit the required output.

SRP £19.99 (U.S. $29.95)

CD-Remix Version 2:- A new program to remix your own music CDs. Apart from overlaying with any of the more than 600 sound effects, speech or drum beats that come with CD-REMIX, you can insert pauses, robot speech and control a second CDTV player (which of course everyone has!) from the first.

SRP £29.99 (U.S. $49.99)



THE PLUS OF EMULATION

Vortex ATonce-Plus the high performance AT emulator is now available for the Amiga 500, the new Amiga 500-Plus and the Amiga 2000. It offers on all three Amiga computers a Norton SI of 16,2.

ATonce-Plus, Vortex told *AUI*, can be installed, without any soldering, directly into the socket of the 68000 CPU (also in the Amiga 2000 without using the plug in adaptor).

All expansion ports and slots remain free. The PC slots inside the Amiga 2000 will not be supported.

The recommended retail price for Vortex ATonce-Plus are: £248 and $448.

Contact: Ute Forstner, Marketing, Vortex Computersysteme GmbH, FalterstraBe 51 - 53, D-7101 Flein.
Tel: +49-7131-597214.

The no soldering MSDOS add on.

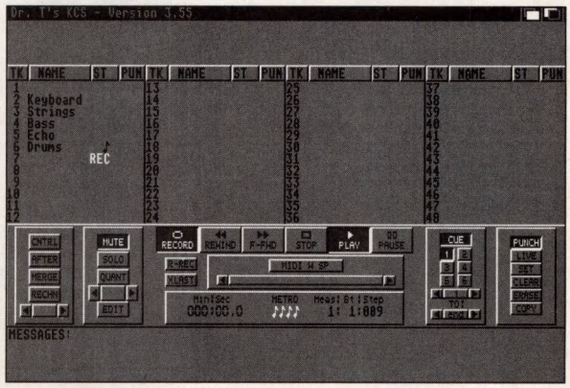
Dr. T LAUNCHES COMPUTER QUEST

Dr. T's Music Software, one of the top publishers of music related computer software, have announced the launch of Computer Quest and an extension of their distribution in the U.K. and Europe.

Their greater emphasis on their products outside the U.S.A. coincides with the release of their new multimedia product 'Computer Quest'. Computer Quest is an application geared toward teaching history of music through exploring the significant works of the great composers from the year 1600 up to the 20th century. Composer Quest also cross-references important events in world history, art and sociological change through the years.

Other music and multimedia related products now available include Music Mouse - a seminal music composing tool, as well as assorted Amiga music software titles.

Contact: Zone Distribution Tel: 081 766 6564



KCS 3.5.. leading Dr T's growth in Europe.

ONE IN A MILLION - OR THREE.

Commodore International has announced that worldwide sales of the Amiga hit the three million mark during November 1991. This represents an increase of a million units from November 1990.

Shipments of Amiga computers began in September, 1985. (And *AUI*, the first non-American Amiga magazine, started at about the same time... Eat your heart out all you other slowcoach magazines...)

Sales reached the one million mark three and a half years after introduction. The two million mark was reached eighteen months later in November 1990, and the three million mark took just twelve months.

In the UK, Amiga sales are nudging a million and look set to pass that mark in early 1992. Its use in home computing, education, leisure and professional markets coupled with its multimedia potential make the Amiga unique in the world computer market place.

Stephen Franklin, Managing Director of Commodore UK, told *AUI*: "Actions speak louder than words. right now I doubt there is any other computer which can equal the growth of the Amiga. This is an astonishing display of strength especially during a worldwide recession and 1992 promises to be even better".

Six year old world leader.

NEWSFILE

ICD'S PRICE CUTS

ICD, Inc., the manufacturer of power peripherals for Amigas , has announced lower prices on nearly all of its products for 1992.

Thomas Harker, president of ICD, told *AUI* " ICD offers the best products at the best price with the best support. Two out of three is not good enough for us. We intend to be market leaders".

A few new examples of the new price cuts are the Flicker Free Video display enhancer, now at $299.96 (about £200.00), the AdSpeed CPU accelerator now at $209.96 (abour £190.00), and the Novia 20i internal hard drive now at $244.96 (about £165.00).

The price cuts are obviously applicable to the U.S.A. but there is no reason why they shouldn't go down the same path elsewhere, is there?

Contact: ICD Inc, 1220, Rock Street, Rockford, IL 61101 USA. Tel: (815) 968 2228.

NEUROPRO 1.0

Neural Networks are the state of the art in intelligent systems, or everybody who knows claims they are. NeuroPro are offering a nice little construction set for intelligent neural networks which can learn to solve complex pattern recognition problems. NeuroPro claims to give neural networks a 'unique' flavour with its colour graphic network display, and high speed training (assembly language with math co-processor support). You can create networks with up to 192 neurons and 8192 connections (Do you really think you need more?).

The intelligence of a neural network isn't expressed in the usual form of a computer program, rather in the strengths of the connections between the neurons in the network. Neural networks learn how to solve pattern recognition problems by modifying the connection strengths in a training process. The training method/design format in NeuroPro is said to be practically a textbook implementation of the back-propagation network method. With colour graphic network display and its ability to load and store (to disk) training patterns and input/output relations, NeuroPro is claimed to be all you need to experiment with and design your own complex problem solving systems. It is also thought to be an ideal tool for classroom demonstrations of this important new technology. Available from any good neural network store.

AUDIO ENGINEER PLUS II

RamScan Software has announced the release of Audio Engineer Plus II with '4 times OverSampling'. The new package consists of GSOFT Stereo digitizer with the new enhanced version 2 of RamScan's Audio Engineer Software.

New features include 4 times oversampling which enhances the sound quality of recordings, according to RamScan, made at slower sample rates by 'significantly reducing' the aliasing distortion normally associated with low speed recordings. In many cases this enables people to record at much slower speeds whilst maintaining respectable sound quality. With this powerful capability, longer recordings can be achieved with less memory, Ramscan claim.

Also new to version 2 is Time/Pitch Bend. AEII has the ability to alter a sound's pitch and duration independently. If, for example, you have a recording that plays for 20 seconds, Audio Engineer II can stretch that sound to last for 25 seconds without altering the pitch of the sound. It is also possible to make the pitch of a sound higher or lower without altering the time that it takes for the sound to play.

Pitch Bend

Audio Engineer also has a Real Time Pitch Bend, which means for those of you who aren't sampling experts, that you can speak into a microphone and have the pitch of your voice transformed higher or lower as you speak.

In addition, editing functions have been provided including Digital filtering, as well as other features such as Realtime Zoom, Telephoto, On Screen Calibration Marks, Progress Meter and Automatic Hardware Filter control.

Owners of version 1 can upgrade to version 2 by sending their original disk and $40.00 Australian (around £18.00) to RamScan Software Pty Ltd, PO Box 267, Avondale Heights, 3034. Melbourne, Australia.

TERRAFORM AND MAKEPATH

Virtual Reality Laboratories Inc have released two modules for Vista and Vista Pro. MakePath: A motion editing tool that allows the user to create complex animation sequences with only a few simple mouse clicks. MakePath creates a script; Vista or VistaPro executes the script creating images that can be stored to hard disk or laid straight down to video tape either "on the fly" or single frame, according to the special equipment you may have. ("On the Fly" seems to be the latest buzzword in computing - and much else. It doesn't have much to do with "flies" of any kind. It just means, it seems, quickly, easily and on the spot. Don't say Newsfile isn't educational!)

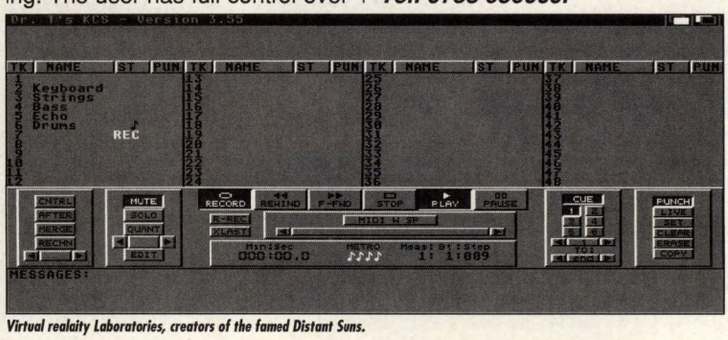
Unlike key-frame based systems, MakePath uses a 3D spline based system for path creation and editing. The user has full control over the motion of the model. The program can incorporate user definable controls such as acceleration rates and control over bank and pitch.

Terraform

Terraform, also from Virtual Reality Laboratories, is a Digital Elevation Model (DEM) terrain editor. With Terraform you can modify an existing landscape or create your own, using tools to build mountains, make craters, flatten areas and paint elevations.

Makes you feel like God, doesn't it? Hmm. I'm bored today... Where's my Terraform. I think I'll create a new mountain - say right in the middle of Downing Street...

Contact: HB Marketing Ltd, Unit 3, Poyle 14, Newlands Drive, Colnbrook, Berks. SL3 0DX. Tel: 0753 686000.



Virtual realaity Laboratories, creators of the famed Distant Suns.

AVAILABLE FROM ALL GOOD COMPUTER DEALERS/STOCKISTS

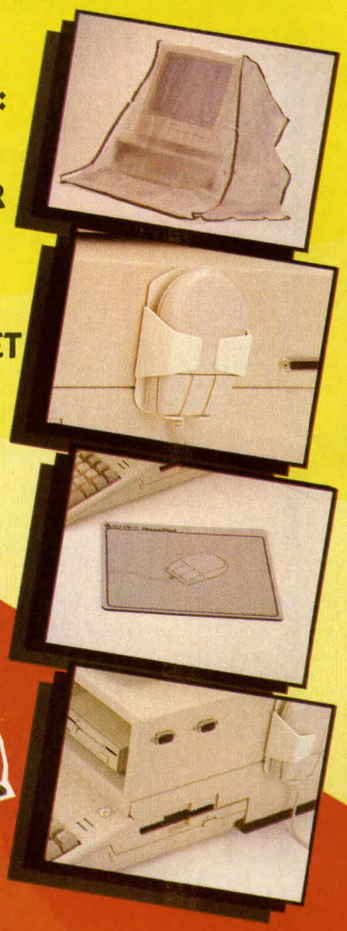
RSD CONNECTIONS LTD

AMIGA 500

Deluxe Work Centre

THE IDEAL COMPANION FOR YOUR AMIGA 500

PACK INCLUDES:
DUST COVER
MOUSE HOLDER
MOUSE PAD
JOYSTICK/
MOUSE CABLE SET



MANUFACTURERS, SUPPLIERS OF
COMPUTER CABLES,
PERIPHERALS AND ACCESSORIES

RSD CONNECTIONS LTD

AMIGA 500

Deluxe Work Centre

THE IDEAL COMPANION FOR YOUR AMIGA 500

RSD CONNECTIONS,
MEAD BUSINESS CENTRE, MEAD LANE,
HERTFORD, ENGLAND. SG13 7AG
TEL: 0992 584205 FAX: 0992 584207

This advert is an exact reproduction of the packaging used on the Deluxe Work Centre

If unavailable contact us direct SRP £49.95 inc VAT
Allow 7 days delivery p+p extra £4.50

VIRUS FREE

NO MINIMUM ORDER

A.J.P.D.L

17 WATSON AVENUE
ST ALBANS, HERTS
AL3 5HP Dept *AUI*

7

Free Catalogu

UTILITIES

U001	Ultimate Virus Killer
U002	Mega Utility Disc
U003	Amibase
U004	QBase, Spreadsheet
U005	Journal
U006	Text Plus
U007	CLI Tutor
U008	Spreadsheet
U009	Spectrum Emulator
U010	A64 Emulator
U011	Crunchers and Virus Killers 2
U012	Games Music Creator
U013	Insanity Tools 01
U014	D Copy
U015	Fredfish 340
U016	Speedbench
U017	P Copy V3
U018	C Light
U019	Jazzbench
U020	Label Designer
U021	Biorthms
U022	North C V1.2
U023	M Cad
U024	Hackers and Hacking
U025	Darkstar 2
U026	Darkstar 3
U027	Darkstar 4
U028	Sid V1.6
U029	ST Emulator
U030	TSB Vector, Designer V1.1
U031	PE Utils V.5
U032	T Bag 43
U033	Sidney & Friends
U034	ESA Utilities
U035	A68K Assembler
U036	XLS DISC 1U037 The Magicians Utilities
U038	Red Devil Utilities 4
U039	Running Man Update
U040	Pendle Europa Utilities
U041	ICPUG Printer Utilities

DEMOS

D001	Classic Demos
D002	Stealthy 11
D003	Fleet Maneouvres
D004	Iraq Demo
D005	Coyote Strikes Back
D006	Fraxion Horror
D007	Safe Sex
D008	Iron Maiden Slideshow
D009	Lotus Car Chase
D010	Robocop 2 Slideshow
D011	Die Filkinger Naughty Cartoon
D012	Robocop 15 seconds
D013	Total Recall
D014	Evil Dead Demo
D015	Puggs in Space
D016	More Aerotoons
D017	Scanners Horror Demo X Rated
D018	Scanners Horror Demo X Rated
D019	Popeye Meets Beach Boys
D020	Bloodsport Demo
D021	Nightmare on Elm Street
D022	Creepshow 1
D023	Total Destruction
D024	Alpha Flight Demo
D025	Anti Lemmings
D026	Enterprise Leaving Dock
D027	Crionics Megademo
D028	Fractal Flight
D029	Silents Scroller
D030	Utopia Cartoon Slides
D031	Bunsen Burner
D032	The Link Megademo
D033	Ghost Pool
D034	Scoopex Seven Sins
D035	Disney Slideshow
D036	Sleeping Bag Demo
D037	System 5 Demo
D038	Share & Enjoy 46
D039	Thames TV Demo
D040	Vision Megademo
D041	Fast Cars Slideshow
D042	Mobed
D043	Kefrens Wall Demo
D044	Beast 2 Preview
D045	Treacle
D046	Share and Enjoy 47
D047	Simpsons Mini Mega (XXX)
D048	Glass World Animation
D049	Congaman Animation
D050	Anarchy Scratch Pack 39
D051	Bugs Bunny Animation
D052	Smurf & Cokeman Animations
D053	Juggette Animation

If you cannot see the disc yo

5p PER DISK INCLUDING P+P

ue with every order.

Make Cheques and Postal Orders payable to A.J.P.D.L. and send them to:
17 WATSON AVENUE,
ST ALBANS, HERTS
AL3 5HP

Orders despatched within 24 hours of receipt of Order

GAMES

G001 Missile Command
G002 Pontoon
G003 Jeopardy – Version of Risk
G004 Star Trek – The Game (Disk 1 of 2)
G005 Star Trek – The Game (Disk 2 of 2)
G006 PD Games (Disc 1)
G007 Tetris
G008 Packman 81
G009 Monopoly
G010 Games Galore
G011 Games Galore including Chess, Daleks & Tron
G012 PD Games (Disk 2)
G013 Flaschbier
G014 Video Tennis
G015 Holy Grail
G016 PD Games (Disc 3)
G017 Amiopoly
G018 Tennis
G019 Diplomacy
G020 Twintris
G021 Drip
G022 Popeye
G023 Eatmine
G024 Return to Earth
G025 Hack

JOYSTICKS

Zip Stick (Auto Fire) @ £10.99
Python @ £8.99
Apache @ £6.50
Flight Grip @ £8.45

MUSIC

M001 Debbie Gibson – Electric Youth (Disk 1)
M002 Debbie Gibson – Electric Youth (Disk 2)
M003 Madonna – Hanky Panky
M004 Pet Shop Boys – Always On My Mind
M005 Jean M. Jarre – Docklands
M006 Music Invasion 11
M007 Betty Boo 1
M008 Betty Boo 2
M009 Vogue & Justify My Love
M010 Batdance Mega Mix
M011 Madonna – Like a Virgin
M012 Amiga Chart 5 – Touch Me & Eve of War
M013 Yellow Megamix
M014 Queen – Flash! (Disk 1)
M015 Queen – Flash! (Disk 2)
M016 Loadsamoney Rap
M017 Pet Shop Boys
M018 Jean M. Jarre – Live
M019 Crusaders Play Genesis
M020 Sam Fox Super Sound
M021 Queen & Black Box
M022 Roxette & Dire Straits
M023 Bomb The Base

ACCESSORIES

Printer Stands	@ £5.25
Mouse Pockets	@ £1.29
Mouse Mats	@ £2.39
Dust Covers	@ £2.89
Cleaning Kits	@ £2.47
Ram Expansion	@ £24.99
Zydec 3.5" Disc Drive	@ £54.00
10 3.5" discs with labels	@ £5.00
20 3.5" discs with labels	@ £10.00
50 3.5" discs with labels	@ £20.00
50 3.5" discs with labels + 80 capacity disc box plus 10PD Titles from the above list	@ £26.00

Orders for Joysticks, Disc Boxes and Accessories please add 75p for postage and packing.

CDTV £499.95

5 YEAR ON SITE GUARANTEE

DISC BOXES

3.5", 40 capacity @ £4.89
3.5", 80 capacity @ £5.25

ou are looking for, send us details and we will get it for you for no extra charge.

ENTER THE WORLD OF FANTASIA WITH COMMODORE AND ATARI HOME COMPUTER SYSTEMS

FANTASIA

Entertainment & Leisure Ltd

AMIGA 500 + CARTOON CLASSICS PACK
RRP. £399.00
FANTASIA'S Price
£359.00

Advanced home computer with powerful 1mg RAM. Professional style keyboard and mouse. T.V. modulator and built-in disc drive for 3½" disc. Pack includes 3 cartoon games. "The Simpsons", "Lemmings" and "Captain Planet" and "Delux Paint II" to create your own cartoons.

AMIGA 500 + CARTOON CLASSIC'S XTRA PACK 1.

Top Quality joystick + The Simpsons, Lemmings, Captain Planet, DP2 + Gremlins 2, Interceptor, Nebulos, Football Manager, Las Vegas, Star Ray, Quadralien, Eyes of Horos, Star Goose, Battle Valley

FANTASIA DEAL: £385.00!

AMIGA 500 + CARTOON CLASSIC'S XTRA PACK 2.

Top Quality joystick + The Simpsons, Lemmings, Captain Planet, D Paint 2 + Datastorm, Dungeon Quest, E-motion, Grand Monster Slam, Kid Gloves, Powerplay, RVF Honda, Shuffle Puck Cafe, Soccer and Tower of Babel

FANTASIA DEAL: £385.00!

All Amiga 500's are the new 500 Plus models with 1MB RAM, work bench 2.04 + enhanced chips for improved graphics.

£304.99
SEE FANTASIA SPECIAL OFFER

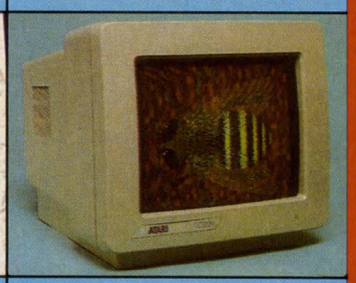
Atari 520 ST Discovery Pack Inc:
3½"Floppy 512K RAM TV modulator
Midi parts 4096 colours. Free Joysticks

Anarchy	Control ACC
Dragons Breath	Emulator ACC
Indiana Jones	First Basic
Super cycle	Neochrome
	St Toll

AMIGA MONITOR

Philips CM8832/11 stereo Colour Monitor All our monitors are of UK specification are covered by a 12 month warranty and come with a connection cable. **£219.99**

AMIGA MONITOR



Atari SC 1435 Colour Monitor Atari medium resolution colour monitor. Compatible with all Ataris. Connection lead included.

£249.99

COMMODORE CDTV

Package includes:
- CDTV player
- Remote control handset with batteries
- 'Welcome – A guide to CDTV' disk with Caddy
- Instruction manual
- Connecting cables to RF input & to audio
- One year warranty 'return to base'

Plus two other titles
Hutchinson's Excyclopedia – 25,000 entries, 7,000 biographies and 250 tables
Lemmings
Fantasia deal: **£465.00**

AMIGA 1500 Pack

Includes:
Battle Chess
Populous & Promised Lands
Sin City & Terrain editor
The works – Platinum editor
Their Finest Hour
Delux Paint III
Fantasia deal: **£675.00**

A500 Class of 90's	£459.99
A500 512K RAM exp	£44.99
A590 20 meg HD 0MB RAM	£279.99
A590 20 meg HD 1MB RAM	£329.99
A590 20 meg HD 2MB RAM	£379.99
Cummana ext drive Amiga	£59.99
Atari ext drive inc Free Software	£74.99
Atari Family Curriculum (Call for details)	£339.99
Quick Joy Turbo Joystick Atari or Amiga	£8.95

PRINTERS

Citizen Swift 9	£199.99
Citizen 120D	£149.99
Citizen Swift 24 (192CPS)	£299.99
Citizen 124D (120CPS)	£210.00
Star LC10 Mono	£call
Star LC24/10 Mono	£call
Star LC 200 Colour	£call
Star LC 24/200 Mono	£call
Star LC24/200 Colour	£call

FANTASIA ALSO SPECIALISE IN SEGA, NINTENDO AND ATARI GAMES CONSOLES. CALL FOR PRICES.

MAIL ORDERS
SALES & ENQUIRIES DESK
0202 514533
FAX: (0202) 293456
FANTASIA ENTERTAINMENTS & LEISURE
18 MAGNOLIA HOUSE · RED HILL DRIVE
BOURNEMOUTH · DORSET

ALL PRICES INCLUDE V.A.T.

Delivery charges UK Mainland
HARDWARE: £8.00 + VAT per box
SOFTWARE: Postage paid

Subject to availability despatch is normally effected within 2 days from receipt of cleared payment. Please allow 5 working days for cheque clearance. All orders will be fulfilled up to 28 days unless otherwise notified.

All prices and manufacturer's specifications are subject to change without notice. Please check

GVP's PC EMULATOR FOR THE A500.

Great Valley Products has introduced the GVP/PC286, AT emulator for the A500. The unit plugs directly into the internal Mini Slot expansion connector of the Series II A500 Hard Drive/ RAM expansion subsystem. It provides full emulation of the 80286 based PC environment.

The unit, which features a 16Mhz 8026 CPU, will, GVP told *AUI*, operate at over 15 times the speed of a standard PC XT, and also permits concurrent operation of Amiga-Dos and MS-DOS applications, including Microsoft Windows.

The PC emulator also features parallel and serial port, sound, real time clock and CMOS RAM/extended memory support. Another advantage of the unit, say GVP, is the fact that, since the unit installs inside GVP's expansion unit, the A500 itself doesn't need to be dismantled or tampered with, hence there is no danger of jeopardizing the computer's warranty.(Well, it's about time someone thoought of doing something like that.)

Gerard Bucas, president of GVP, told *AUI* that the emulator is the first of a line of products that will support the unique mini-slot in the Series II A500 subsystem.

He told *AUI* "It is our goal to provide the A500 owner with the ultimate" (Oh no - not "ultimate" again!) "computer. The introduction of the GVP/PC286 is the first step in turning this computer into a system that will rival units costing several thousand dollars more".

The unit also has a socket for installing optional 80287 FPU, and requires MS-DOS 3.2 or higher or DR DOS 5.0 or higher.

Contact: GVP,600 Clark Avenue, King of Prussia, Pennsylvania PA 19406 Tel: 215-337-8770

PLAY COLOURFUL AMERICAN FOOTBALL

The Amiga version of John Madden American Football has been released, featuring enhanced graphics and over 70 colours on-screen at any one time during play. The game includes 350 frames of sprite animation, plus digitised in-game static screens. Option screens include the ability to choose the weather and pitch type in regular season and playoff games.

John Madden, known for his commentary on Superbowl and American Football on Channel 4, has been instrumental in developing the game using over 100 plays from his playbook, so players can make creative choices for any down situation and field position.

A 'thumping' soundtrack completes the scenarios.

Price £25.99

Contact: Electronic Arts, Langley Business Centre, 11-14 Station Road, Langley, Nr. Slough, Berkshire SL3 8YN Tel: 0753 549442.

ANIMATTES; WEDDING SERIES

Animattes is a collection of self-running graphic routines to use when producing a wedding video. It works on any Amiga/ genlock combination and is completely icon-driven for easy point-and-click operation.

Once the animate is running, there is no worry about remembering which key to hit. Hitting any other key other than the ESC key will cause the animation to progress to the next appropriate action. Wow!

You can choose from eleven routines to mix and match when producing all those romantic videos. Each routine is ready to use and may be personalized and modified by the user with DeluxePaint III. A tutorial gives step-by-step instructions on modifying the Animattes.(Animattes? Sounds like a Motown group from the Sixties, doesn't it? Got to Number Three in the Charts with "It's My Boyfriend's Wedding Day. But Not Mine!")

Suggested price $39.95. (About £26.00)

Contact: Electric Crayon Studios, 3624 North 64th street, Milawaukee, WI 53216. U.S.A. Tel: (414) 444 9981.

EASY AMOS FOR GRANNY

Europress have announced their new product Easy Amos with the slogan 'Even my Granny can program with Easy Amos'. That's a bit of an ageist idea, isn't it?(I bet there are a lot of grannies around who have a jolly good grasp of the fundementals. Maybe the Fat Lady should run a 'computer literate granny competition'!)

Well, for those Grannies still needing some basic training, the Easy Amos is aimed at absolute beginners. It consists of 350 AMOS commands with a 'cute', Europress's words not ours, little Martian tutor called Professor AMOS - providing helpful tips and hints to make programming on the Amiga 'fun'.

Marketing Manager Paul Shrimpling said "We've made EASY AMOS so easy to use that even my granny has been through the first two chapters." (Now we know where he gets his brains from)." She was reluctant at first but now she's keen to learn more.

You can just imagine the scene can't you? " Now, Granny we were going to take you down to the pier at Blackpool but instead we're going to stay in and make sure you learn to program." I know where my Granny would have told me to go - and it wouldn't have been Blackpool Pier! So if anyone is looking for a package to help learn or develop programming skills, apply to Paul's Granny.

The full Amos, Europress says, needs some basic understanding of computing and programming, but EASY AMOS assumes the user has absolutely zero knowledge. Well, someone, if he had a brain he'd be dangerous!.

Mel"I love Grannies too" Croucher, who used to a comedian, has joined in the 'fun' by providing an "entertaining and inspirational handbook" - for the Martian, naturally. Says Mel "EASY AMOS is astonishing, I only wish I'd had access to it when I was first learning to program in the early days." Gosh. We wonder if his Granny does too!

EASY AMOS costs £34.99. A day return to Blackpool Pier on British Rail from Macclesfield a lot less.

OXXI LAUNCHES NEW NETWORK

Oxxi has announced Amiga Client Software (ACS), the first Amiga networking software, they claim, to permit seamless integration of Amiga workstations into any new or existing Novell NetWare network. The development of ACS by Oxxi now enables Amigas to join DOS-based PCs in file and resource sharing, greatly enhancing and expanding the Amigas capabilities as a low-cost, high-performance multimedia workstation, OXXI point out.

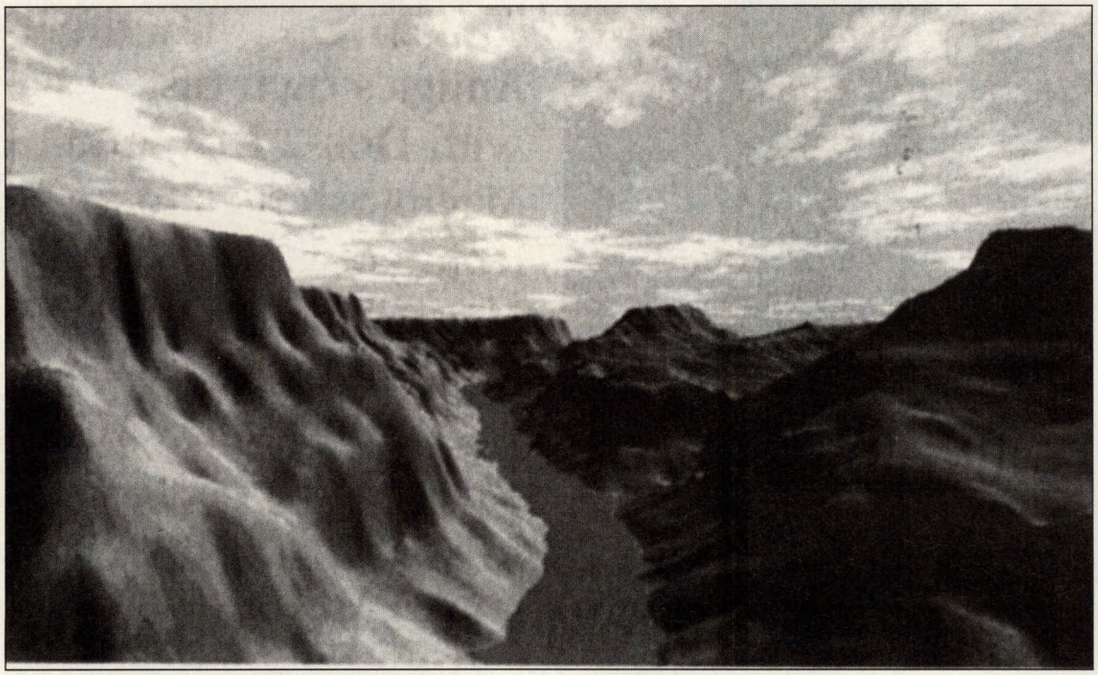
Amigas become valid participants in NetWare environments simply by utilizing available Ethernet or Arcnet adaptors over standard coaxial or twisted-pair topologies.

Amiga Client Software provides users with all the standard Novell utilities for easy management of network functions. Novell NetWare utilities may be performed through the use of icons or directly from the CLI.

As well as providing Security and Data integrity, OXXI's ACS enables an Amiga user to access any number of Novell Netware file servers and volumes, even in Wide Area Networks. Amiga applications can be stored on one or more file servers and shared by any Amiga or accessed by other workstations.

Amiga Client Software requires an Amiga with 512Kb of RAM memory, (running Amiga Workbench v1.3 or higher and Kickstart v1.2 or higher), an appropriate Ethernet or Arcnet LAN adaptor with cabling, and a PC compatible fileserver using Novell NetWare version 2.15C, 2.2 or 3.1x or higher.

Contact: Oxxi Inc. PO Box 90309, Long Beach, California 90809. Tel: (310) 427 1227.



Want visit a moonscape? Create your own imaginary world with Scenery Animator.

ANIMATE THE REAL WORLD

Scenery Animator lets you create incredibly realistic animations of real world or imaginary fractal landscapes. Natural Graphics say it's easy to use (they would, wouldn't they?) and has many features such as 3-D control of camera path; all resolutions and IFF24; unlimited landscape size. It has an animation editor; a map shows overhead view. There is an instant preview window; colour and lighting control. Scenery Generator requires 2 MBytes.

Contact: Natural Graphics, P.O.Box 1963, Rocklin, California CA 95677, U.S.A. Tel: (916) 624 1436

REXX PLUS COMPILER

A Rexx, for those of you who have been asleep for the last year or so, is a command language which performs repetitive functions for products, connects mutiple products by way of REXX ports, and provides a quick and dirty languge for making prototypes.

Rexx Plus Compiler is claimed to speed up execution of compiled programs; allow previously written programs to be compiled and executed without interfering with interpreted code and provide a transparent interface so the user does not have to determine if the program is compiled.

The REXX PLUS Compiler includes the following features: A Rexx programs execute 2 to 15 times faster; elimination of the External library and host lookups by resolving function calls at compile-time; createing re-entrant programs for use as resident programs or as a part or a support library. It also uses Rexxplslib. library, library and Rexxmathlib. library functions as built-in functions; it calls Rexx programs directly from other languages; and uses the compiler listing generated to find constants, symbols and nesting levels It finds references to symbols, constants and labels with the cross reference produced; finds logic errors in the Rexx priogram, by using the nesting levels produced; it finds most errors with a single compile and it uses the Rexx Variable interface to access symbols set from hosts.

Contact: Dineen Edwards Group, 1978 W. 12 Mile Road., Suite 305, Southfield, MI 48076-2553. Tel: 313-352-4288.

COLOURPIC STARS ON TV

In Episode Seven of the popular BBC TV series " Scotch on the Rocks", shown recently, an unexpected star was JCL's ColourPic Amiga framegrabber. ColourPic, reviewed in ***AUI*** February, was used as the key to solving a mystery around which the story was created. JCL told ***AUI*** that the BBC had insisted on putting the digitiser through its paces in a completely genuine way so that the technical process of its use would not be ridiculed by eagle-eyed Amiga users who would, no doubt, have telephone the Director General in their thousands!

ColourPic Plus

JCL also told ***AUI*** that they are about to release and enhanced version of the digitiser called, unsurprisingly, ColorPic Plus. It is claimed to use the latest technology to provide the best realtime digitising results on the Amiga in its price range.

ColourPic Plus is said to be going to have lots of juicy new features including a larger framestore RAM capacity, S-VHS and RGB inputs, AniMate facility as standard, the ability to switch from framestore to Amiga display on the same monitor by pressing the space bar and an add-on utility to let the serious database user mix a framestore picture in 64,000 colours with text on the same screen. Sounds good, doesn't it?

ColourPic Plus will come bundled with the new Cabaret Plus software which includes extra filters for special effects and the ability to save pictrures in 24 bit IFF format. It comes with a built-in power pack and, claims JCL, is sturdy enough to sit your monitor on! It should be available shortly priced at £699.00

It will, JCL told ***AUI***, work on any Amiga including the A500Plus, of course.

No A690 Trade In

Aquarian from Southampton (see review, page whatever), announced an upgrade to A590 hard drives which allows you to put up to 8 Mb of FAST memory into the case instead of the existing 2 Mb limit.

Aquarian told ***AUI***: "This overcomes a major limitation for many people and means they won't have to trade their A590 for another drive".

Aquarian say that the expansion will cost less than £100 and will require you to send them your A590 for the modification which should take only a day to complete.

Also from Aquarian comes news of an optical read/write drive. This will plug into an existing SCSI controller (A590 or 2091 from Commodore), and allow you to use industry standard 128 Mb 3.5" optiomagnetic disks. These allow you to overwrite data over 1,000,000 times before the system gives up, so that should take care of any number of mistakes you make.

This little beauty will set you back about £850, but the storage potential is unlimited. Although the drives are not desperately quick (access time 60 ms), the backup time for a hard drive shouldn't be more than 20 minutes, a worthwhile investment for most power users.

Contact: Aquarian Public Domain, 78, Merridale Road, Peartree Green, Southampton, SO27AD. (0703) 658006

POOR PERSON'S THINKER II

Poor Person Software have announced Release of 2.1.4 of its Hypertext application - Thinker. Release 2.1.4 is CD-ROM ready with the ability to treat any CD-ROM database as a Thinker hypertext document. It lets you to modify read only Thinker documents on CD-ROM as if they were standard Thinker documents. New features extend the ARexx support and improve the user interface, say Poor Person.

Thinker can be used to text networks and using basic text editing skills, allow users to organise work, produce multimedia study systems, write interactive fiction, create flexible databases of text and video as well as other creative tasks.

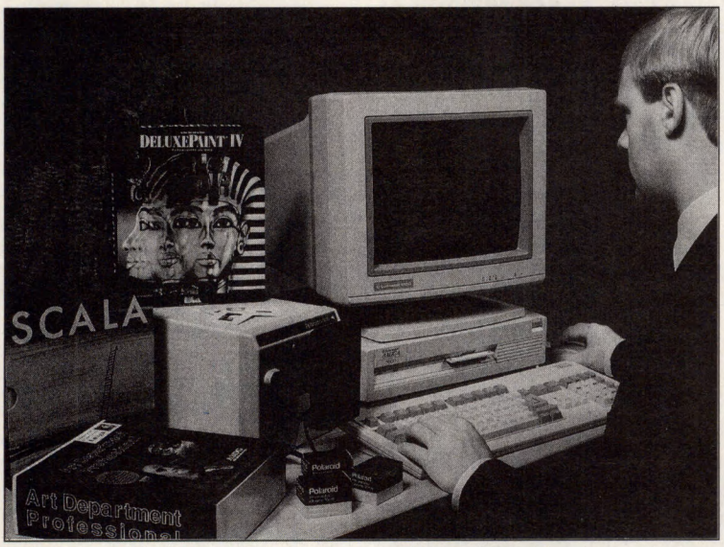
Hypertext links can be to text, pictures, ARexx ports, or applications either in the Workbench or via the CLI.

The RRP of Thinker is $80 (about £50.00). Registered users may upgrade to Thinker 2.1.4 for $15.

POLAROID DEVELOPED!

The Polaroid CI-3000 Digital Palette - which enables you to obtain full colour instant and conventional 35mm slides as text and graphics from your computer screen - is now compatible with the Amiga.

The images can be produced on either conventional 35mm slide film or Polaroid instant 35mm slide film, which provides a full colour slide within minutes of exposure. In addition, a range of camera attachments enables the production of 3 1/4 x 4 1/4- inch instant colour prints and overhead transparencies, self developing AutoFilm or 5 x 4-inch conventionally processed colour transparencies or instant prints. (If you have the thousands of pounds to buy one, this Polaroid sounds fun toconect to your Amiga. We all know what most Polaroid cameras are used for in the privacy of the home and those very, very private moments...)



Art Dept Pro's new Polaroid module can help make an enticing record of those very private moments.

Art Department Pofessional, specially written by ASDG, is now included in the selection of other leading graphics software already compatible with the CI-3000.

The CI-3000 digital Palette film recorder connects to the parallel port of the Amiga, requiring only the loading of the software driver to interface with the chosen graphics package. Controlled from the keyboard, images can be created and previewed before printing, then exposed onto high-quality 35mm colour slide film with a resolution of over 2000 lines and up to 16.7 million colours. This far exceeds the requirements for most business needs.

Art Department Professional with extra module CI3000 interface driver costs £169.95 including VAT and £129.95 plus VAT for the CI3000 driver module.

BACK-GROUND BITS 24

New from CV Designs comes Background Bits 24, a collection of 24-bit graduated backdrops set up for those either titling with a Toaster or any 24-bit program that accepts 736 x 480 overscan. Graduated shades in blue, gold and greens, shaded boxes, gridwork and brushes to create your own backdrops are packed on two disks. Suggested price. $28.00 (about £18.00)

Contact: CV Designs, 61 Clewely RD, Metford, MA 02155. U.S.A. Tel: (617) 391 9224.

DATAFLYER IDE

Expansions Systems, have built on their Dataflyer line of SCSI controllers by introducing a new line for the IDE and AT types of hard disk drives.

These new controllers provide all the features of the original Dataflyer SCSI line but at a lower cost with faster rates of transfer.

Priced at £99.95, the Dataflyer IDE comes in models for the A500, A1000, A1500 and A2000. Each Dataflyer RAM card can be mounted to the Dataflyer controller card or placed in the A2000 expansion slot.

The Dataflyer IDE/SCSI version of this interface gives the user the option to run the SCSI, IDE or both at the same time.

Contact: Hard Cache Sales Tel: 071 704 1614.

Portable Amiga *Again?*

There have been many rumours over the years of portable Amigas. There was once even a prototype produced, not by Commodore, and shown at an AmiExpo show in the USA. Lately the rumours have been less frequent.

We were very interested when we obtained a drawing of a portable Amiga called The Resolver. However, it is not an official Commodore product, and if it ever gets off the drawing board it won't see the light of day until 1993. As you can see from the drawing it looks very stylish with two rollettes to replace the mouse. The flaw in the design is that to simulate the left and right mouse buttons you need to use the "Alt" and "Amiga" keys on the keyboard. More news of the portable may emerge....or it may not.

GRAND PRIZE FOR TEAM EVESHAM MICROS

Team Evesham Micros, sponsored by Olivetti, have capped their season of five wins, three pole positions and one fastest lap, by winning a brand new (well, it wouldn't do to give a second hand model would it!) Rover 216 GTi 16v twin cam.

The 12-round Rover-sponsored championship took the Evesham Micros team, led by winning driver Dave Loudoun, around most of the top race circuits during the year, to Silverstone, where Dave secured his title.

The team are currently preparing for the 1992 season. When do they find time to do any work?

Eversham . . . a racing team with computter connections

Commodore's A1500 Plus

The A1500 will be getting the same Commodore prescription as the A500. Commodore will shortly be shipping the A1500 fitted with the Enhanced Chip Set including Workbench 2. It is believed to retail for the same price as the previous A1500 at £699. This move by Commodore has brought the A1500 in line with the A3000 and A500 Plus with the ECS. It appears that Commodore has lost interest in their more expensive 2000 model, unless it too gets the Plus treatment. So when is Workbench 3 coming out, and the rumoured A300 stripped down Amiga (with possible cartridge slot), and the 68040 based A4000, big C?

PLAY WITH THE MIRACLE

The Miracle Piano Teaching System, a piano which, it is claimed, teaches users how to play itself, is now available for the Amiga. The Miracle, with its three components - software, a keyboard and a cable connection to the user's personal computer - is, say the company which has developed it - The Software Toolworks, the only interactive system of its kind available to Amiga users who want to learn to play the piano.

The Miracle was introduced last year for use with the Nintendo (though we can't imagine that many of those addicted subteeenagers really wanted to learn the piano on it) and now has finally caught up with the Amiga.

The Miracle comes with a stand-alone piano keyboard with 49 full-sized keys. The keyboard attaches to the Amiga's serial port and the software program customizes lessons for the student with video games and popular songs. The system also comes with built-in stereo speakers, AC adaptor and earphones. The keyboard has velocity-sensitive keys, a sustain pedal, and full MIDI compatibility. It is claimed to produce over 100 digital musical sounds.

Mindscape, its distributors in the U.K. and Europe, say that all students, regardless of skill level, can progress through more than 1000 lessons at their own pace. The software program can tell how and when each piano key is pressed; it isolates trouble spots in note recognition, rhythm or fingering, and then creates lessons customised to meet individual needs. As a result, told ***AUI***, students learn at their own pace to read music and play the piano with both hands.

With over 100 songs built in, Mindscape say that students can enjoy musical accompaniment as if they were playing with an entire orchestra.

So now is your big chance to become another Chopin or Andre' Previn for the retail price is about £250.00.

CURLERS IN HIS BEARD?

Having been extradited from Cleveland, Ohio, Joseph Popp, a scientist accused of spreading the AIDS computer virus, has now been sent back to the US for psychiatric assessment.

Southwark Crown Court, in London, heard that Popp had taken to wearing a cardboard box and putting curlers in his beard in the belief that they would be able to detect radioactivity. He was on trial accused of spreading the AIDS virus to the 20,699 users he found on the mailing list of the UK magazine PC Business World. The disks contained information about AIDS, but included in the advice was a warning that a virus would take hold unless a fee of $378 was sent to an address in Panama. The charge included 11 counts of blackmail, amounting to $6 billion.

If Popp doesn't sound as if all his lights are on, we hope that it wasn't an effect that is contagious to users of other computers like the Amiga.

Your Upgrade for WB 2

Commodore has told ***AUI*** that the official Kickstart 2.04 upgrade is now available to the public. Amigas with Kickstart 1.2 and 1.3 ROMS can be upgraded without the need for a soldering iron.

The official Kickstart 2 upgrade will include the new ROM, a Workbench 2 disk, an Extras disk, a fonts and utility disk, and a brand new manual. At the time of going to press, Commodore could not confirm the price of the upgrade but said they hope to retail it for £79. This is good news for everyone in the Amiga community, but ***AUI*** advises you to get your order in quickly before the new stock runs dry.

POWER COMPUTING

Economy Packs

1 PC880E + 10 Maxell Disks £52
2 PC880E + 10 Maxell Disks and Zip Stick £61
3 PC880E + 10 Maxell Disks and 512K RAM with clock £79
without clock £76
4 PC880E + 10 Maxell Disks, 1MB RAM (For A500+ only) £92
5 PC880E + 10 Maxell Disks and 1·5MB £101
6 PC880E + 40 Maxell Disks, DD40 diskette box, Power Mouse, Zip Stick & 512K RAM £114
7 PC880E + 40 Maxell Disks, DD40 diskette box, Power Mouse, Zip Stick & 1MB RAM (for A500+ only) £129
8 PC880E + 40 Maxell Disks, DD40 diskette box, Power Mouse, Zip Stick & 1·5MB RAM £169

Home Packs

1 PC880B + 10 Maxell Disks £75·95
2 PC880B + 10 Maxell Disks & Zip Stick £84·95
3 PC880B + 10 Maxell Disks, 512K RAM with clock £97·95
without clock £91·95
4 PC880B + 10 Maxell Disks & 1MB (for A500+ only) £112·95
5 PC880B + 10 Maxell Disks & 1·5MB RAM £152·95
6 PC880B + 40 Maxell Disks, DD40 diskette box, Power Mouse, Zip Stick & 512K RAM £148·95
7 PC880B + 40 Maxell Disks, DD40 diskette box, Power Mouse, Zip Stick & 1MB RAM (for A500+ only) £163
8 PC880B + 40 Maxell Disks, DD40 diskette box, Power Mouse, Zip Stick & 1·5MB RAM £199

Executive Packs

1 Dual Drive inc. PSU + 10 Maxell Disks £125
2 Dual Drive + 10 Maxell Disks & Zip Stick £134
3 Dual Drive + 10 Maxell Disks & 512K with clock £159
4 Dual Drive + 10 Maxell Disks & 1MB RAM £174
5 Dual Drive + 10 Maxell Disks & 1·5MB RAM £214
6 Dual Drive + 40 Maxell Disks, DD40 diskette box, Power Mouse, Zip Stick & 512K RAM £203
7 Dual Drive + 40 Maxell Disks, DD40 diskette box, Power Mouse, Zip Stick & 1MB RAM £219
8 Dual Drive + 40 Maxell Disks, DD40 diskette box, Power Mouse, Zip Stick & 1·5MB RAM £258

GVP Series 2 Hard Disk (A500)

Up to 8MB FAST RAM on-board

52QMB 0MB	£379	105QMB 0MB	£579
52QMB 2MB	£439	105QMB 2MB	£631
52QMB 4MB	£469	105QMB 4MB	£691
52QMB 8MB	£649	105QMB 8MB	£840

GVP Series 2 Hard Card or Nexus Hard Card

High speed 'FAASTROM' controller
Up to 8MB Simm RAM on board fully auto booting
Supports external SCSI devices
For A1500/A2000

Bare	£199		
52QMB	£279	105QMB	£479
52QMB 2MB	£339	105QMB 2MB	£539
52QMB 4MB	£399	105QMB 4MB	£599
52QMB 8MB	£469	105QMB 8MB	£749

GVP Combo Board

22MHz 1MB RAM	£549
33MHz 4MB RAM	£1199
50MHz 4MB RAM	£1685
SIMM 32 x 1MB-60	£65
SIMM 32 x 4MB-60	£234
Hard drive mount kit	£35

GVP A2000 RAM Expansion

2MB RAM installed £159
4MB £219 6MB £279 8MB £339

GVP Sound Sampler £73

(All GVP products come with 2 year guarantee)

Kickstart Switcher

The Power Kickstart Switcher fits into any A500 or A500+ and can be fitted with up to three Kickstart ROMS and can be enabled when you switch on your Amiga. This gives you all the benefits of the new versions of Kickstart while still being able to use your old games and software.

Kickstart Switcher (bare)	£14·95
Switcher with Kickstart 1·3	£44
Switcher with Kickstart 2·04	£64
Switcher with Kickstart 1·3 and 2·04	£94

PC501 + RAM Card

Our RAM board is designed specially for the new A500+ computer and comes with 1MB of RAM on board to expand your memory to 2MB of chip RAM. Plug in and go operation - fits into the trapdoor. Gives you a total of 2MB of chip RAM £49
32 chip RAM card £39·95

8MB A500 RAM Board

Plugs into the side slot
Fully auto-config
Full thru'port
Expand 2MB-8MB
Plug in and go operation £POA

1·5MB RAM Board

Plugs easily into your Amiga
Fully supports 1MB chip RAM
Fully compatible with 'Fatter Agnus' £79
(Kickstart 1·3 and above) (not compatible with A500+)

A500 RAM Card

A half Megabyte RAM expansion with battery backed up clock and a free disk packed with useful software (4 chip RAM) £29
A500 512K RAM Card without clock £24
16 chip RAM card with clock £24
16 chip RAM card without clock £19

PC880B Disk Drive

Built-in Blitz hardware copier
Built-in virus blocker
No annoying clicking when drive is empty £69·95

Dual Drive

High spec, low power NEC mechanism
Whisper quiet operation
Blitz copier built-in (switchable)
Virus blocker built-in (switchable)
Anti click
Power supply included
PC880E disk drive £45·95
PC881 A500 internal drive £40
PC882 A2000 internal drive £45
52QMB Slimline hard drive £299
(Amiga must be opened for simple internal fitting)
A500 Internal Anti-click board
Stop that internal drive clicking £9·95

Send your order to Power Computing Ltd, Unit 8 Railton Road, Woburn Road Industrial Estate, Kempston, Bedford MK42 7PN
Ring your credit card order through on **0234 843388 (10 lines)** or fax your order on **0234 840234**. Technical Helpline **0234 841882**

All prices include VAT, delivery and are subject to change. Specifications are subject to change without notice. Next day delivery £4·50 (U.K. mainland only), all trademarks acknowledged.

Power Computing SRL Italy, Via Delle Baleari, 90, 00121 Ostia Lido, Roma
Tel (06) 5646310 (2 lines) Fax 5646301

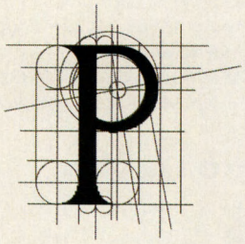
Power Computing France, 15 Bld Voltaire 75011, Paris France
Tel (1) 43570169 (6 lines) Fax (1) 43380435

Power Computing U.S.A., 21 South 5th Street, Suite 900, Philadelphia, PA 19106
Tel 215 922 0050 Fax 215 922 0116

7 Steps to Excellence

PageLiner

ART EXPRESSION



HotLinks »

1 START WITH A POWERFUL TEXT EDITOR

PageLiner makes typing easy, with a real WorkBench 2 interface and powerful formatting options.

2 USE THE BEST AMIGA ILLUSTRATOR

You should turn to the best Amiga illustrator to create your drawings. Art Expression combines features like auto-tracing, text-in-shape and blend to give you total creative freedom.

3 PUT THEM TOGETHER WITH PAGESTREAM

Other programs claim to be the ultimate in desktop publishing, but only PageStream constantly leads the way with more features than any other program. And PageStream 2.2 is the best release yet!

4 CAN YOU COUNT TO 600?

Desktop publishing is nothing without fonts, and we have more than anybody else. The Soft-Logik Typeface Library has 600 PostScript Type 1 fonts!

5 SO YOU CAN'T DRAW.

Let's face it, some of us shouldn't be allowed to use pencils or brushes. That's why we're introducing the Soft-Logik Graphic Library, with 15 volumes of amazing PostScript graphics.

6 TOUCH UP PICTURES

BME is an amazing new program to crop and edit bitmap pictures. Zoom in and clean up your scans pixel by pixel!

7 HOTLINK YOUR DTP SYSTEM!

Software tools are great, but it's time they started working together. That's why we've created HotLinks for the Amiga. HotLinks is an Inter-Program Communications system which lets your programs exchange data in real time, on one computer and across networks. So instead of spending time importing text and graphics, you can spend more time being creative.

"the Amiga desktop publishing king of the hill." — AmigaWorld
"a jewel of a program." — Amazing Amiga
"PageStream delivers outstanding performance at an outstanding price." — .info
"the heavyweight champion." — AmigaUser International

The choice for professional publishing is the Soft-Logik Publishing System.

For a PageStream authorized dealer near you contact:
HB Marketing 0753-686-0000 or SDL 081-300-3399

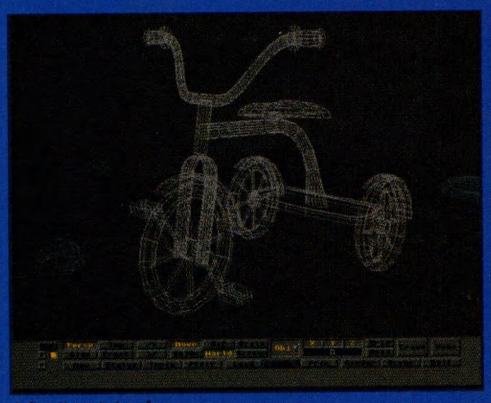
Soft-Logik Publishing Corporation • *We give you the tools to dream.*

PageStream 2.2, HotLinks, BME and PageLiner: Winter '91. Art Expression: coming soon.

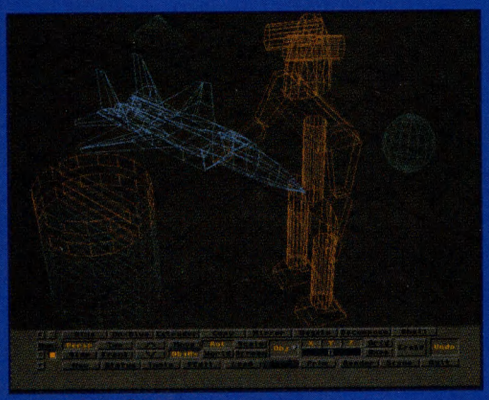
PREVIEW

Caligari 2

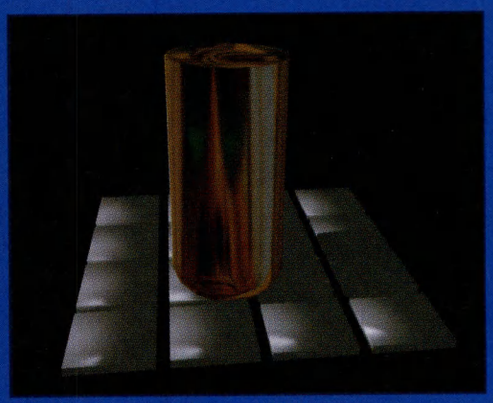
There are 3D rendering programs and there are 3D rendering programs. Caligari is something different and quite special. Gary Fenton pretends to enter cyberspace for this preview of Octree's Caligari 2.



Caligari's main interface.



Looks simple? Well, it is!



This took 3 minutes to render on an A3000.

Octree Software, based in New York USA, first released Caligari some years ago when it caused quite a storm. No-one had ever seen a program with such a simple but powerful user interface before. Until then, people had to put up with 2D representations of objects which took time to evolve into a recognisable item.

Caligari is back in its second generation, which will attract even more attention now than the first did when it was released. There are several versions available for both the complete novice and serious broadcast and production companies. All versions are more or less the same except for differences in lighting, object attributes, animation, and rendering quality. The user interface is identical in all incarnations of Caligari which is a good thing.

Simple Controls

The controls are simple but so effective, even a six year old could get to grips with it. Everything is mouse controlled and hotkeys are available as an alternative. The main screen is a borderless window into a 3D world. There are no multi-window screens to confuse you. The control menu is a panel with a restricted amount of controls at the bottom of the screen. More advanced functions and tools can be called up by clicking on sub-menu buttons. There are no clumsy pull down menus at the top of the screen. To move an object, click on move and then click on the object. By holding down the mouse button you can move the objects anywhere in the 3D world just by dragging it with the mouse. Combinations of holding either or both mouse buttons will move the object in different directions. Rotating or re-sizing objects is just as easy and totally visual, in real time.

Moving your view around the 3D world could not be simpler. This is the nearest thing to virtual reality without the head gear and other hardware necessary. Just as you would move on object, you click on the EYE button and on MOVE. Placing your mouse pointer on your view of the 3D world and holding down either or both mouse buttons allows easy navigation. Just by moving your mouse in the direction you want to go moves your view in real time.

Because larger and complicated objects require more processing power to redraw, they will be reduced to a rectangular block if your computer hasn't got the steam power needed to do it. Saying that, an ordinary A500 can shift around an object with 14 faces in real time without any problems. An A3000 running Caligari can manipulate complicated objects extremely well, in real time.

Rendering

Rendering output can be done several ways depending on which version of Caligari you purchased. It can render direct to a frame buffer or to disk, memory and disk space permitting. Display methods supported include HAM, HAM-E, DCTV, Harlequin 32 bit and IV-24. More formats will be supported as they become widely available.

Caligari looks set to shake the 3D modelling and animation world once again. We will be receiving the latest version in the next few days so look out for the full review in the April issue of *AUI*.

WORKBENCH Version 2.04 Part 3

Mike Nelson this month examines the changes to AmigaDOS that have come with the new Amiga operating system. Version 2.04 - what does it mean for programmers?

Over the last two issues I have described the changes experienced by the Workbench and AmigaDOS users, and this month it is the turn of the Amiga programmer. The operating system has changed remarkably with large chunks of it being completely re-written, but the story does not end there as it is obvious that Commodore have big plans for the future. If you want your software to be part of these plans for years to come, you will have to stick to some new rules. Carolyn Scheppner of Commodore Applications and Technical Support stressed the problems they experienced when trying existing software with their beta test versions of 2.0.

"Some of the code, mainly from games, was amazing in the assumptions made by programmers. We had to look at source code to see what was happening and build fixes into the operating system".

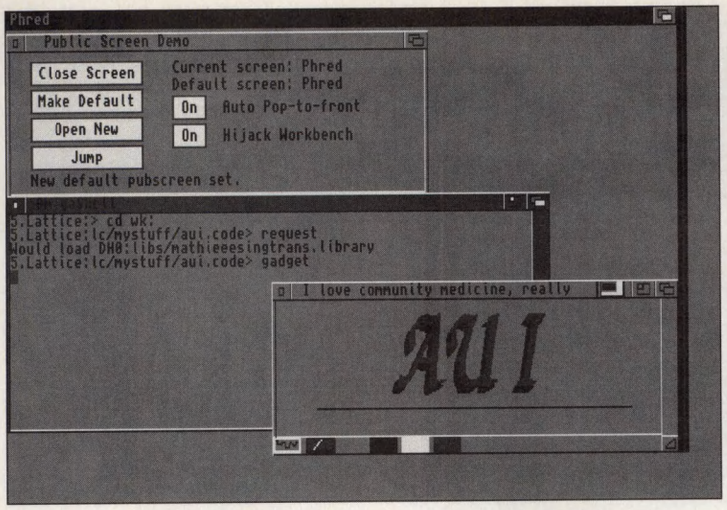
This was the main reason for the long delay in releasing 2.0 and A3000 users will testify to the number of preliminary versions supplied on disk. In this article I will describe some of the incredible lengths that Commodore were forced into just to get 2.0 released, and also how to go about avoiding similar problems in the future. First though some of the general points to bear in mind when writing upwardly compatible code.

General Stuff

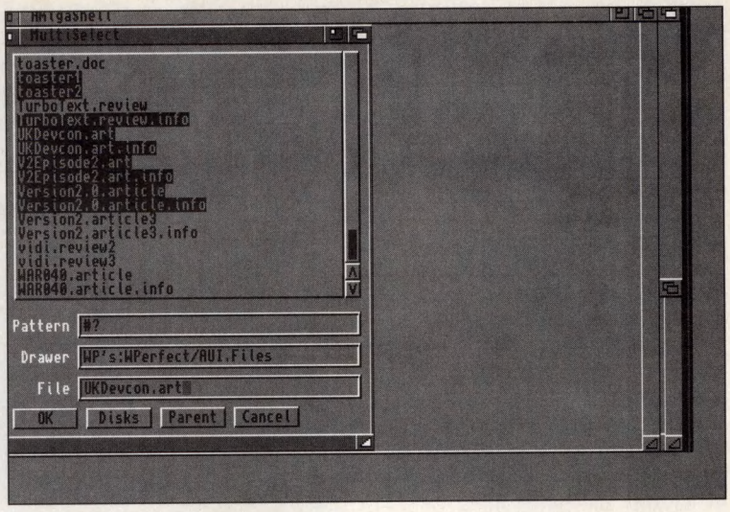
There are two ways of approaching programming on the Amiga, namely using the operating system or ignoring it, and these throw up different problems of compatibility. Games writers using the latter method are probably guilty of the worst violations of fairly basic programming rules, although the first action most games actually take is to throw out the operating system completely, ignoring all the graphics and sound features. This is perfectly justified in many cases as although the operating system is very powerful, the stock 68000 is not really quick enough to support many of its advanced features. The hardware is, however, incredibly fast considering the 7.14 MHz clock speed, and so the secret of smooth multi-coloured graphics is to "hit the metal" going directly for poking the registers of the custom chips to generate your effects. This is where the fun starts.

Many programmers ignore the most basic of Commodore's stipulations that you MUST mask out inappropriate bits from your pokes and peeks as although current chips may not use those registers, future expansion may require them. A good example is the blitter control registers which, until recently, were only capable of handling values up to the 1 Mb limit for CHIP RAM.

> "The ROM size has almost doubled under 2.0."



Workbench1: This shows the new public screen. It's like a Workbench in that other programs can open their windows on it, but the resolution and colours can be anything.



Workbench2: The new ASL standard files requester. All singing and dancing, you can even select several files at a time!

The Enhanced Chip Set (ECS) of A500 Plus or A3000 machines can handle 2 Mb of CHIP memory, and so you cannot get away with writing spurious bits as they are now meaningful, and not ignored by the system as in previous machines. Currently undefined bits must therefore be set to zero, and also do not assume initial values for registers - always either check or set them yourself.

Making jumps into the ROM has never been advocated by Commodore, but people still try it anyway! The dynamic nature of the Amiga's multi-tasking operating system has meant that it is unsafe to call ROM routines directly - that's why there is a fairly straightforward library-based protocol instead. The ROM size has almost doubled under 2.0, partly because things like the DOS scripting commands found in 1.3 C: directories have been placed there for speed purposes. One commonly seen faux pas is to jump to $FC0002 as this caused a reset under 1.3, and its prolific use caused Commodore's various Gurus to write "Kickety Split", a hack for 2.04 ROMS that mimics this reset, but be warned as it does not appear on A3000s and will not be maintained in the future as there is simply not enough room.

Kickety Split is only one example of 2.0 hacks. Another delights in the name of "Jumpy the magic timer device". This was necessary because .Programmers tied up the internal timer clocks, so correctly written code was unable to utilise them and lost out. Jumpy polls all the timers in an attempt to find one for a program requesting it, but again do not expect this to be present for much longer. These two hacks show the lengths Commodore needed to goto (sic!), but the names also reveal some disturbing details regarding the minds of those hard at work in West Chester...

The fancy disk protection schemes don't seem too tolerant of change, being very closely tied to a particular type of machine. The emergence of 68030 (and 040, dare I say it?) based Amigas has shown up a lot of dodgy programming. There is no real reason why fast action games should crash or not even load in the first place just because the machine is running quicker. Programmers who use delay loops of the format

for i=1 to 1000: next i

are in for a serious slap on the wrist as the cacheing facilities of newer processors, along with faster clock speeds, make this code immeasurably faster, defeating the purpose. The Vertical Blank timer is tuned to the mains frequency which is guaranteed to be 50 Hz whatever the processor and is a preferred method of generating delays.

> **Why the heck can't games programmers utilise expansion memory and hard drives?**

While we're on the subject of accelerated or expanded Amigas, why the heck can't games programmers utilise expansion memory and hard drives? It is really irritating to have to juggle with disk swaps when 7 Mb of RAM and 80 Mb of hard drive are on line!

A few other points to bear in mind about taking over the Amiga are not to take all of the RAM, just get what you need. Tryingto steal Workbench's bit planes is also a distinct no-no because it now does not necessarily open at startup time. The system stack requirements under 2.0 are also different to previous releases, so don't try and shave things too close. Enough of that, and back to 2.0 and the changes to the dos.library.

The AmigaDOS library

This is one of the most significant areas of the Amiga operating system to be radically altered. In fact, it has been completely re-written and is now a hybrid of C and assembler like the other system libraries, rather than the ancient BCPL originally used. This was always a sticky area for programmers as it meant getting to grips with two very different methods of communicating with the OS. However, DOS now behaves like everything else, having a proper library base (and LVO for the technically minded). Certain aspects of BCPL such as BPTRs or BSTRs are still supported for backwards compatibility.

Re-writing existing code is all well and good, but using those functions was sometimes more involved than strictly necessary. The new library contains many more functions than 1.3 to help programmers manipulate files more easily and quickly. A clever innovation is the standard command line argument parser which takes the hassle out of dealing with CLI parameters. A new function ReadArgs() takes a template as one of its arguments and compares the user input according to the rules implicit in the template. Abbreviations to keywords (like Q for Quick) are supported, and ReadArgs() will convert ASCII numbers into proper numeric variables. Several other features make this addition to the dos.library very welcome indeed.

AmigaDOS has a reputation for being slightly on the slow side, and this was not entirely unjustified. One good reason for this speed problem was that there was no buffering built into the system. Commodore's original IFF code was equipped with buffer functions to speed things up, but this was only a temporary fix and not available universally. The problem arises when you're doing lots of small reads or writes and the time taken to kick the drive into action. Buffered I/O is provided in 2.0 with a series of functions which are directly equivalent to the likes of Read() and Write() but are called FRead() and FWrite(). Calling these means that when you perform a buffered write to a device, the data goes into a temporary RAM zone that is sent to the disk only when full, so ▶

WORKBENCH VERSION 2.04 CONTINUED

there is no time wasted while the drive chunders about looking for somewhere to put the information etc. This method is much more effective than just calling Read() and Write() constantly, but these older unbuffered functions are still there for compatibility, whoever he or she is.

Dealing with File Handles, Date Stamps and other AmigaDOS data structures is now less involved owing to another pile of useful new functions, but there's no room for detailed descriptions of them all in this article, so refer to the new AmigaDOS manual and AutoDocs.

Graphics Library

The new Denise chip graphics modes such as Productivity and Super HIRES are now supported, and the Copper list instructions have been altered enough to make poking around with them even more dodgy than before. Don't do it!

The graphics library has not undergone the same radical revision as AmigaDOS, but there are significant changes which are far more subtle, and potentially far-reaching. It seems that Commodore are looking to expand the capabilities of the Amiga hardware in a number of directions, and various alterations to the approach to graphics are incorporated in 2.0. While these are not strictly necessary for current ECS computers, they do lay the foundations for a very rosy, and colourful, future. "Retargettable graphics" is a phrase I introduced in my article on the Denver Devcon, and this is a very positive step from the Big C in recognising that third party manufacturers are going to be bringing out a whole array of powerful graphics boards. Software vendors will complain about having to support them all, but if everyone sticks to a common standard, any given program will interface with the operating system which will pass on specific instructions to individual drivers from the graphics cards. In other words, a program needn't concern itself with how its output is being displayed, and likewise, a graphics card doesn't need to worry about how it got its data for display; everyone is compatible and the user benefits from a wide choice of hardware.

To this end, Commodore are introducing a kind of open-endedness about system data structures. Programmers will be used to the C convention adopted by earlier versions of having a format like this:-

```
struct NewWindow = { Data in Here };
```

This worked fine, but gives little room for expansion once a struct was defined, so a system of Tags is employed in 2.0. Note that old "structs" are still there, but the extensions afforded by Tags are only the beginning and are presumably paving the way for some new hardware support. Tags are also seen in other areas of the OS such as Intuition which we shall come to presently.

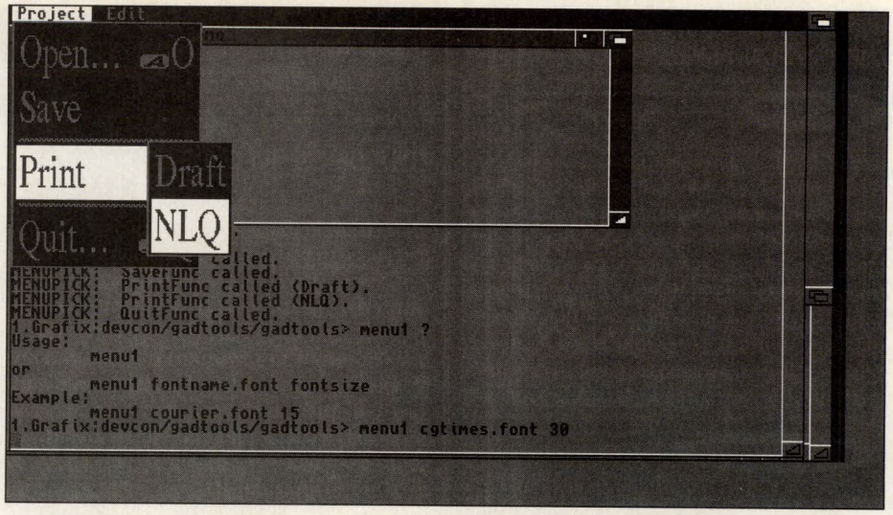
The divergence of Amiga hardware is only just beginning, and so is the support from the operating system. We are now seeing different types of monitor being recognised and also the user has potentially a range of choices available regarding screen mode. Older Amiga software really limited to user to "interlaced or not" options, but this is inadequate for professional use so programs can now ask the operating system's display database (using new functions like FindDisplayInfo()) about the hardware available and act accordingly.

> *It seems that Commodore are looking to expand the capabilities of the Amiga hardware in a number of directions.*

Support for text handling has also been increased with the introduction of outline font technology. Several new functions have been added to make life a bit more pleasant for those writing to the screen, including one to calculate how many characters can fit in a given space with the current font.

Intuition Library

Intuition has come in for a major-league update under 2.0, and again the foundations are being laid to take things much further in the future. Considerable use of Tags to extend the capabilities of Intuition means a new approach for programmers, and also getting to grips with some new libraries. The utility.library has been added to the ROM and contains a number of routines for manipulating the lists of Tags.



Workbench3: The new GadTools library builds menus according to the font requested by the user, no matter how weird this may be.

The new ROM Kernel manual describing the use of this library is not yet available, so the details of Tags are pretty few and far between at present. The idea is that the constraints of the C struct are removed using a list of arrays which, in theory, can be unlimited in length. I think that Commodore have some big plans up their sleeves, and this new mechanism for communicating data to the operating system gives them the flexibility for massive expansion to the hardware capabilities in the future, without causing too much havoc in trying to hack extensions into existing data structures.

Although the Tags look superficially more complex than previous methods, the extra power is worth the effort as there is a move towards a standard environment which is very flexible for the user; choosing fonts, resolution and colours should be available in any productivity software so the user can tailor the environment to their own preferences.

BOOPSI

Object-oriented programming is another trendy area which the Amiga is about enter, and Intuition provides the first tentative steps into a potentially fascinating world. BOOPSI is an acronym for Basic Object-Oriented Programming System for Intuition, and looks dreadfully complicated from seeing example code and the include files! I'm sure though that Commodore only have our best interests at heart and once you get into the swing of BOOPSI, life in general should be much easier. As I understand it, the idea with OOPS is, as a rule, to move the programmer further away from the grass roots of creating gadgets and menus and hopefully make it harder to wreak havoc in the computer by trying weird things out. This does have the disadvantage of constraining you to more rigid rules, but that is not always such a downer, and anything that improves software stability on the Amiga gets my vote (for what it's worth!). Precise details of how BOOPSI works is beyond both this article and me at present, but hopefully we

can bring you some programming articles over the next few months.

GadTools and ASL Libraries

New to 2.0 are these two libraries which are meant to simplify building menus and gadgets, and also provide a standard series of requesters for files and fonts. These have benefits for both the programmer who is freed from the mundane jobs and also the user who gets more a consistent interface across different software. The need to upgrade to 2.0 as far as users are concerned is great, given that the present situation means that programmers have to cope with both 1.3 and the new OS, but these libraries provide really valuable resources that only 2.0 users get the full benefit from.

Calling the libraries is relatively straightforward for those familiar with the conventions of the Amiga, and much of the heavy ground work of dealing with IntuiText structures is taken over by GadTools. All you specify is the most basic of information and GadTools constructs the menus for you so the program does not have to worry about the current font employed by the user, for instance. The following code fragment illustrates how to go about using Tags to get GadTools to set up the menu illustrated:-

```
struct NewMenu mynewmenu[] =
{
  { NM_TITLE, "Project",    0 , 0, 0, 0,},
  { NM_ITEM, "Open...",   "O", 0, 0, OpenFunc,},
  { NM_ITEM, "Save",    0 , 0, 0, SaveFunc,},
  { NM_ITEM, NM_BARLABEL,  0 , 0, 0, 0,},
  { NM_ITEM, "Print",    0 , 0, 0, 0,},
  { NM_SUB, "Draft",    0 , 0, 0, PrintFunc,},
  { NM_SUB, "NLQ",    0 , 0, 0, PrintFunc,},
  { NM_ITEM, NM_BARLABEL,  0 , 0, 0, 0,},
  { NM_ITEM, "Quit...",   "Q", 0, 0, QuitFunc,},
  { NM_TITLE, "Edit",    0 , 0, 0, 0,},
  { NM_ITEM, "Cut",   "X", 0, 0, 0,},
  { NM_ITEM, "Copy",   "C", 0, 0, 0,},
  { NM_ITEM, "Paste",   "V", 0, 0, 0,},
  { NM_ITEM, NM_BARLABEL,  0 , 0, 0, 0,},
  { NM_ITEM, "Undo",   "Z", 0, 0, 0,},
{ NM_END, 0,      0 , 0, 0, 0,},
};
```

Other Bits

There is now a standard set of functions for manipulating IFF files. The IFFParse.library is perhaps overdue, given that the standard has been in place for six years, but it's definitely better late than never! Up until now, programmers have had to either write their own code to access IFF files, or use the PD functions from Commodore on the Fish disks. Programmers should note that the library does not contain routines to do anything with the IFF files except parse the file header information to check on FORM types and such like; it is up to you to play the sample or display the picture. The library is disk-based and so is available to users under 1.3, but this is not guaranteed to remain the case forever.

> *The need to upgrade to 2.0 as far as users are concerned is great.*

ARexx has become integrated with the Amiga operating system and therefore gets a mention as another two libraries are incorporated into LIBS:. These contain a pile of message passing functions for programs with ARexx interfaces so there is no excuse now for decent application software not to contain support for ARexx.

Lastly, there's the com-modities.library. I described how commodities worked in the last issue, and if you fancy having a go at writing your own, this library will help you to gain control over the Amiga in a system-friendly manner.

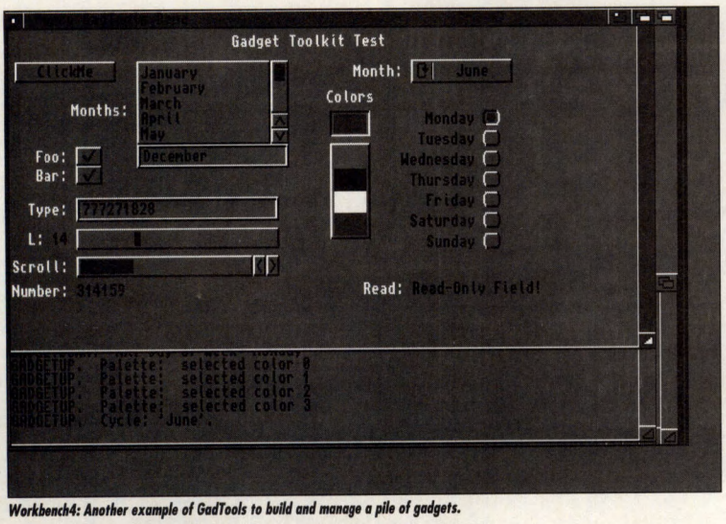
Final Words

If you had just got to grips with the Amiga's powerful operating system and were feeling pretty pleased with yourself, don't be put off by all the changes that have taken place with the release of 2.0. The new mechanisms for communicating your intentions to the OS were not out there to deliberately confuse you, and as with most computing it's mostly logical.

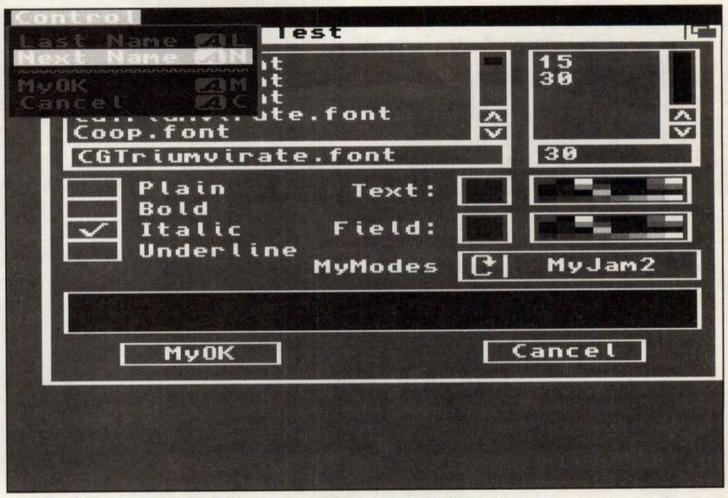
Programmers have the distinct advantage when dealing with new operating systems in that they were written by like-minded people; programmers writing word processors for typists do not think in the same way as their intended audience and problems can therefore result since typists cannot program! In the final analysis, practice makes perfect, and stealing a look at PD source code is often the best way to get started.

Unfortunately, with every new system release there comes the inevitable mountain of documentation to sift through. At the time of writing, the only information available is the "includes and autodocs" manual which is really not meant to teach the programmer about the new protocols and is a reference book. The vital "Libraries and Devices" books should be released pretty imminently and the cost will unfortunately be another stack of wedge.

Programming on the Amiga via the operating system is both challenging, but also very rewarding as it is not so far removed from the real world as the games image of the machine may suggest. Its operating system is constantly evolving, perhaps even outgrowing the lowly 68000 to some extent, but it is there to be utilised. It's very nice to see the steady introduction of Object Oriented Programming as this seems to be a direction taken by most other manufacturers. Whether the Amiga can completely shake off the games machine image is not the debate as it is this market which has sustained it. With the advances in technology, the Amiga has the potential to become one of the most powerful graphics machines for its relatively modest price, and 2.04 must be seen as only the start of these greater things.



Workbench4: Another example of GadTools to build and manage a pile of gadgets.



Workbench5: One of the ASL font requesters on a low-res custom screen with a New Look Menu!

GENLOCKS
RENDALE 8802
£139
RENDALE 8806
£500

SUPER-VHS 8802

At last, the Rendale Super VHS-8802 is available. This high quality unit is based around the Rendale 8802, and offers additional features such as:

- Super VHS both in and out.
- Hardware controlled wipe patterns.
- Hardware controlled fade to black.
- Cross fade between Amiga and video.
- Internal mode switch box.
- Amiga only Preview facility.

£499.00

THE GENLOCK PEOPLE

Do you want to overlay computer graphics or titles onto your videos? If so, you will need a Genlock. Rendale Genlocks are built to a very high standard, and are used widely in the professional environment. Each of the Rendale machines offer both foreground and background modes, the 8802 is a purely composite machine, the 8806 also offers a professional RGB mix option, as well as other advanced features. Do not be fooled by cheaper versions of our Genlocks which are presently on offer, buy direct from the manufacturer or an approved supplier. Please call for further details.

Upgrade your existing 8802 to Super-VHS for only £400.
We will need your 8802 for approximately two days.
Please call on (0604) 790466 to arrange a service date for your unit.
Upgrade your unit and enjoy all the benefits of the S-VHS 8802.

68040 ACCELERATOR BOARDS FOR A2000 + A3000

These 040 boards bring the high speed processing power of the leading edge Motorola 68040 25MHz CPU to your Amiga. These 040 boards will produce results several times faster than previously possible.

68040 Board A3000 **£1399.00**
68040 Board A2000 with 4MBs installed (Board can be fitted with 32MBs). **£1659.00**

FRAMEGRABBER

THE real time colour video image digitiser for Amiga Computers. This compact external Unit comes complete with its own power supply and image control software.

£490.00

ULTRADESIGN

This is a 2.D CAD system which combines power with ease of use. The package requires at least 1 MB of memory, and a hard disk or second floppy drive will make life much easier. Simple to use, the package will have you producing useful drawings almost immediately. This package is powerful enough to appeal to both the serious hobbyist and the professional user.

£175.00

PRICES INCLUDE VAT & DELIVERY
All our products carry a 12 month warranty

**62 Tenter Road,
Moulton Park
Business Centre,
Northampton,
NN3 1AX,
England
Tel: (0604) 790466
or 081-941 6117
Fax: (0604) 647403**

Mastering the Art

MENTOR

Continuing his series on Mastering Art of the Amiga, Graham Baldock this month casts his beady eye at Comic Strips and Cartoons

AMIGA COMICS AND CARTOONS

Do you really want me to draw you a picture? That is the usual way to tell somebody what the position is when hints fall on deaf ears and being blunt isn't quite enough, and why this month we're majoring on Cartoons or more specifically - Comic Strips.

There is no greater way of understanding one another or of communicating information faster than with the use of pictures. From the wall paintings of the cave men to the scribbles of an office doodler, any hard to understand story, manuscript or manual is better understood with the use of simple drawings and diagrams. Ask any child who has been brought up on a diet of Mickey Mouse or the Simpsons and they'll quickly underline this argument.

"You might even make money at it, or possibly get the sack..."

Traditionally the cartoon is hand drawn, usually in the form of a quick sketch, and a few years ago this was the only method acceptable. But with the sophistication of the range of hardware and software in the graphics field increasing, seemingly daily, who knows now? Last Christmas cartoon packages were being sold along with the new Amiga 500Plus. Clip Art cartoon programs are available which short cut the drawing of eyes, eyebrows, mouths etc. New techniques are coming ever closer by the minute. The main advantage of electronic drawing is that of speeding up the process for the production of a finished piece of work which in many circumstances is repetitive.

Take your characters' faces for example. With a few subtle twists in the position of an eyebrow here, a mouth there, all the different expressions of which a face is capable can be reproduced with the minimum of fuss. Position the head on top of a body and there you have it.

Drawing borders, common backgrounds to storyboard sketches, all can be produced so much more quickly, and when you have finished it is even possible to keep your publisher happy by importing your work through a DTP program to the output of film for reproduction direct from your disk.

Most users, me included, find that the normal method of using a mouse to get a drawing on to the screen can be extremely awkward. I would advise that if you want to take up computer cartoons or comic strip-style drawing seriously, getting a graphics tablet or cheaper still, if a little more clumsy, a light pen which can be used directly on the screen.

I have found it more convenient as the monitor screen is upright, to make a special stand for the monitor which tilts it backwards to make the angle of drawing directly on to the screen easier to work with. But make sure that the leads are free at the back, the air vents are not covered up and that you don't lean too heavily on the glass!

The technical bonuses of graphics programs can make an amazing difference to your work. You can select the quality of your line switching from brush to pen to pencil to different sprays in seconds, and patterns can be reproduced at the click of a button. If you wish, a whole cartoon can be cobbled together from your various efforts. Mirror images and perspectives are invaluable too, where you draw a body or head, it can look entirely different when viewed from an alternative angle - without incurring any more work from you!

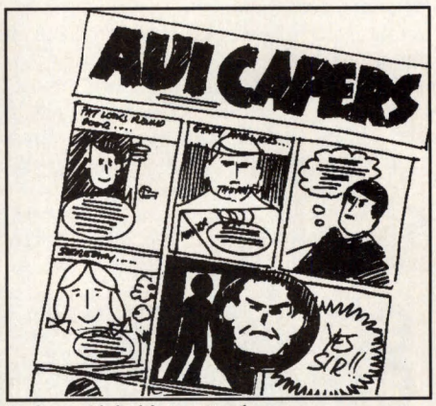
The possibilities are endless and will undoubtably lead more and more budding cartoonists to experiment. Where they may be reluctant to put pen to paper the computer offers so much more room to experiment in !private'.

The technical bonuses of graphics programs can make an amazing difference to your work.

If you are a contributor to your company newsletter or magazine - have a go at producing a strip cartoon, perhaps with caricatures of your workmates or even of your boss. Get his/her photograph, draw the head first of all in one position, exaggerating the more 'prominent' and distinctive parts and follow my simple guide for changing the expressions to suit the story you will invent for them. You might even make money at it, or possibly get the sack! We accept no responsibility.

Getting Started (Using DPaint III)

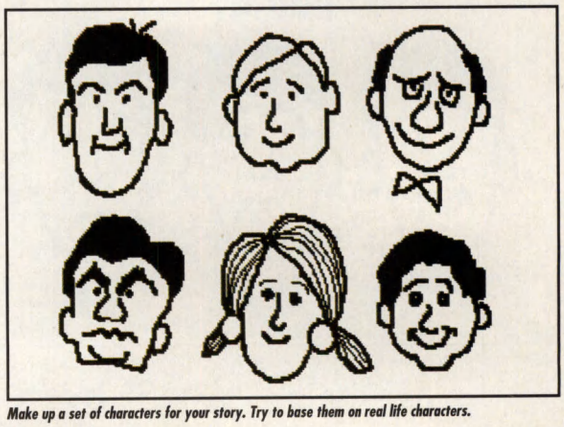
1 If you are going to make a comic strip rather than a single frame cartoon, the first thing to do is to prepare a script. Make it as topical as possible and if it is meant to be a funny story, try to write it so that others see the joke. Sketch it out quickly on a piece of paper, with roughly which illustration will go



Rough out a quick sketch first on a piece of paper

in each box. Vary the size and shape of the boxes, try round, even triangular boxes but above all KEEP IT SIMPLE. One of my panels is just a silhouette of a man in a doorway, very basic, but that implies menace extremely effectively.

2 Make up a set of characters. If you can make them caricatures of people you know who will be associated with the finished article, so much the better but, if



Make up a set of characters for your story. Try to base them on real life characters.

you like, to get yourself started, base them on existing cartoons you have seen. However, if you are going to publish later, make sure to alter them so they are your own work and not copyright from other sources.

3 Start by drawing the character's head in as many positions and with as many expressions as you can think of (I have suggested a few to start off with in the diagram). Give each character its own file. Once you have the heads right, the rest of the illustration will follow quite easily. Good cartoons of people or animals still follow anatomical laws of illustration, however distorted they may at first appear. Unlike normal illustrations though, if you are drawing in cartoon style it is a positive advantage to try and restrict yourself to just one thickness of brush. Keep the detail as basic as possible.

4 Once the script has been written, the characters defined and drawn and the layout sketched roughly out on a piece of paper, you are ready to start drawing the main comic strip/cartoon on screen. I chose Hi-Res for my comic strip as I have a flicker free screen, and made the page area twice the depth of the visible screen.

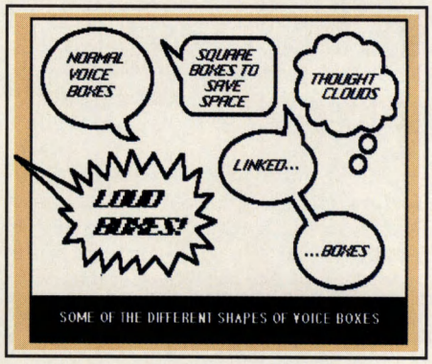
5 Make a panel at the top of the page for the title. If you feel that it would be too difficult to draw in letters freehand, choose the nearest typeface to the one you want that is available on your graphics disk; set it to as large a size as you can, grab it as a brush and enlarge it to the correct size. If you are working with a bitmap program, you should fill in the rough edges to make the shape as smooth as possible.

6 On the pull down menu, click on the 'autotransparent' feature, grab the heading as another brush, position it in the box, and click it into position. At this point, it is quite fun to press F2 so that you can change the brush colour, move the brush slightly to one side over the top of the previous position and click again which leaves a very professional looking shadow effect, especially if the background colour is darker than that of the foreground. At this point, even try grabbing the headline again and make it lean backwards (Star Wars style) using the perspective facility. This can be very effective if your theme is futuristic.

7 Draw in each of the boxes as per your rough pencil sketch, making sure to keep the spaces between the boxes the same, otherwise the finished drawing will look scrappy.

8 Once the boxes are positioned, click on 'J' for the spare screen and load in the head file of the first character. From there, you can grab it as a brush. Press 'J' again, make it whatever size you wish and position it in the box. Repeat this process with all the different characters heads, then and only then, you can draw in the voice boxes.

These come in differing styles, a few of which are detailed below:



9 The text in the boxes needs to be in a typeface which resembles hand written script as closely as possible and for this reason I chose *DIAMOND ITALIC*. However it is a good idea to vary the typeface occasionaly Ñand especially effective if, when you enlarge it and put it in bold for emphasis, perhaps when a character is shouting. Also make the words much, much bigger if everyone is SHOUTING AT THE SAME TIME! Conversly, the opposite is true if a character is whispering, in other words, make the text a lot smaller, but within the same size voice box.

After the faces, boxes and text are in position, draw in a relevant background. I have kept the background lines and colours to a minimum, simplicity being the key. In fact, I found that the default colours were quite bright enough for me so I didn't change any of them.

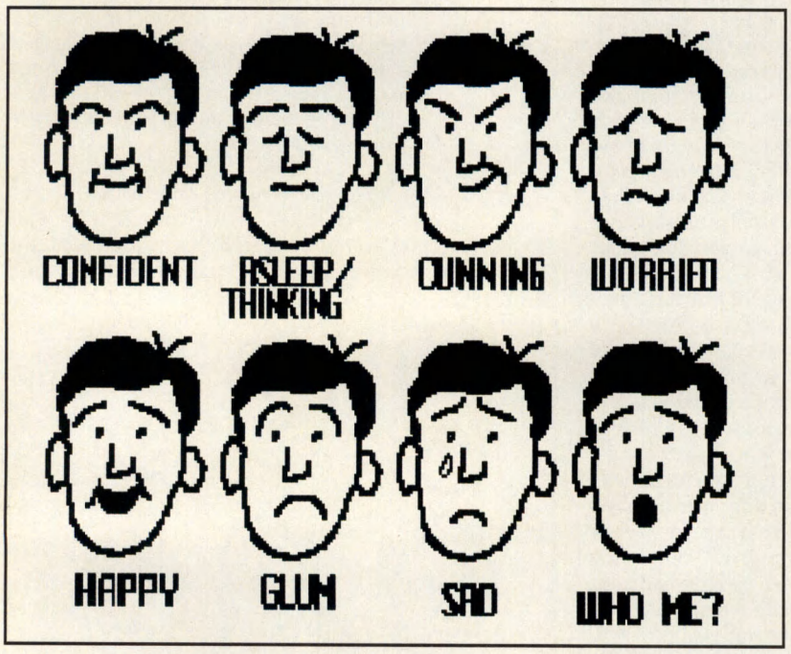
Good luck with your cartoon stripping and we would appreciate a look at your efforts when you have finished. Try and make up a topical script, preferably relevant to the Amiga and who knows, you may become our resident strip cartoonist!

Bart Simpson was brought to the big screen using my acetate and felt pen technique. Keep the outlines all the same thickness and although the slight shadow areas seem as though they are not doing much, they certainly add a lot to the finished picture

COMIC STRIPS

COMIC STRIPS

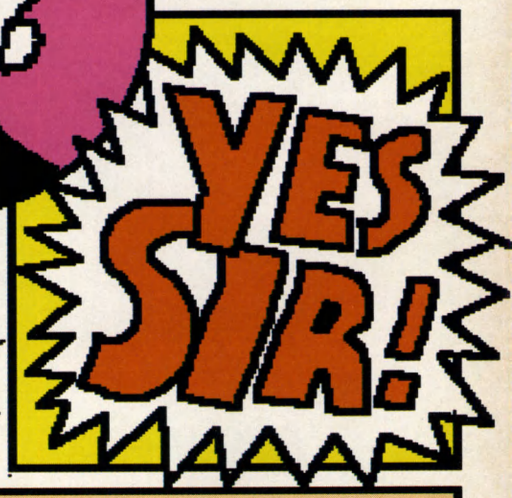
COMIC STRIPS
COMIC STRIPS

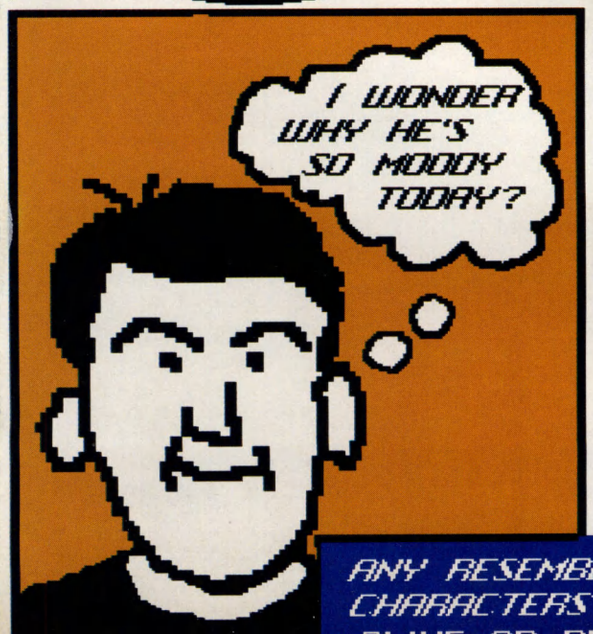


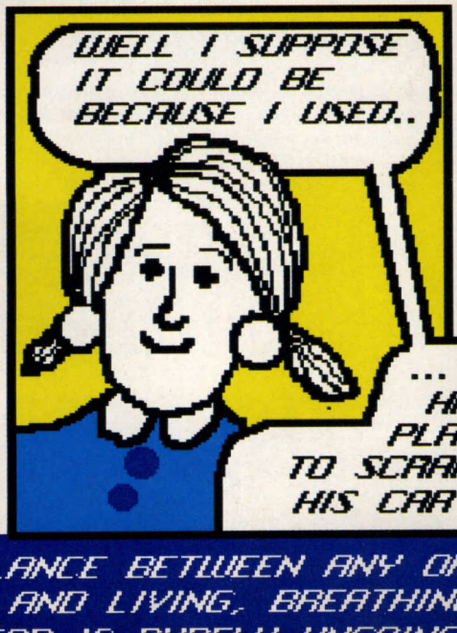
Notice how the features which have been changed are all contained within the same head outline. Flip the head horizontally by picking it up as a brush and you'll be astonished at the seemingly substantial change in expression, even though it is just a mirror image.

AUI CAPERS

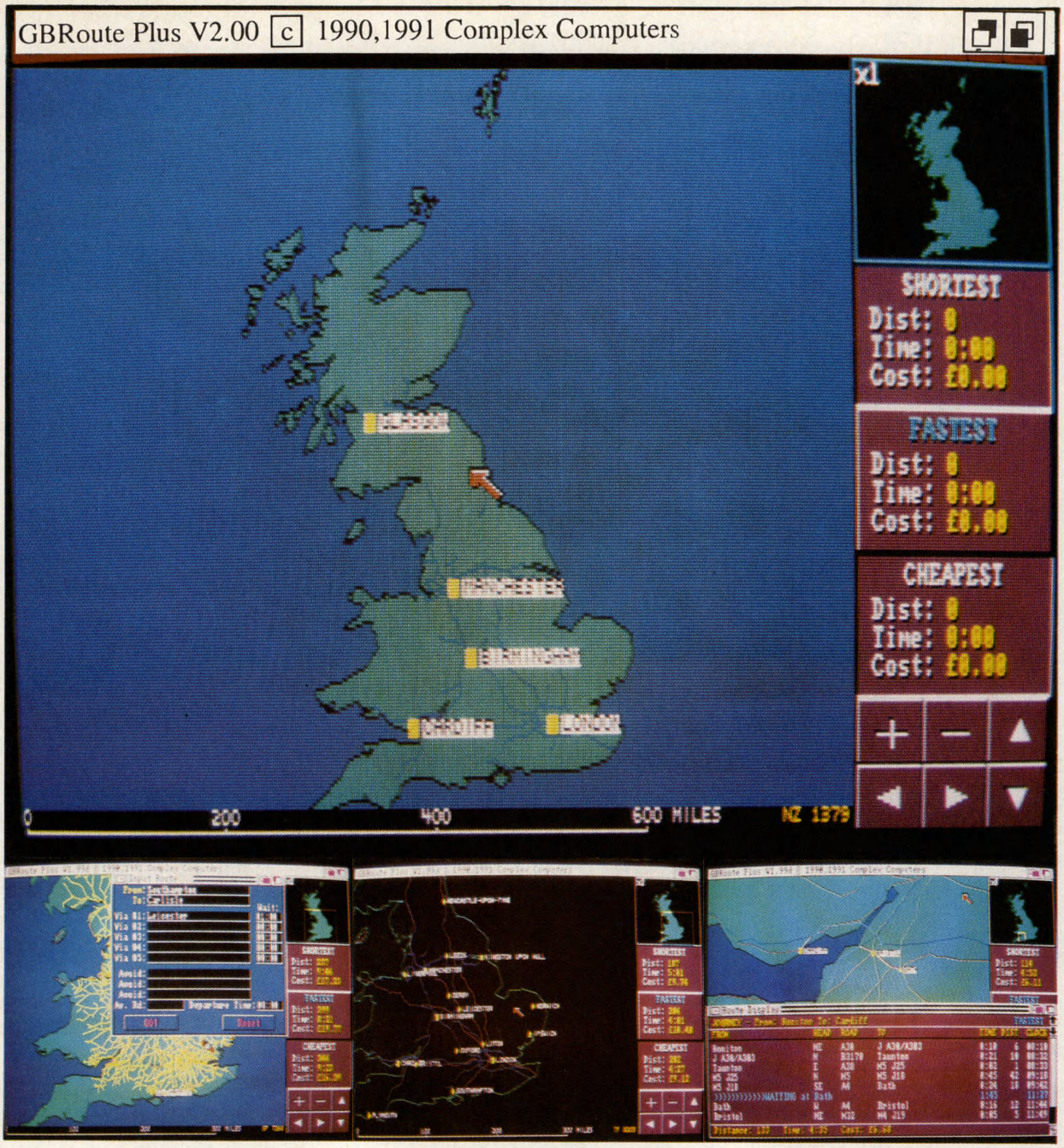
ISSUE NO 1







ANY RESEMBLANCE BETWEEN ANY OF THESE CHARACTERS AND LIVING, BREATHING HUMANS



GBRoute Plus

Route Planner for the Amiga

£79.95 Inc Vat

1 Meg Required

£79.95 Inc Vat

1 Meg Required

GBRoute Plus for the Amiga computer has been carefully designed to assist the United Kingdom motorist plan easily and efficiently journeys almost anywhere in the UK. GBRoute Plus will not only find routes but will also cost, time and distance a journey in a matter of seconds, allowing the user to then print out a route or graphical map in either black and white or colour. There are many other features within the software designed for ease of use many of which allow the user to customise the program to suit the individual driver.

Features include:-

* Over 25 Million possible routes
* Calculate shortest, fastest and cheapest routes
* Includes Motorways, A roads and B roads
* Includes Cities, Towns and many Villages
* 5 Via options, 3 Avoid places and avoid road
* Colour and wireframe map graphics
* Interlace display
* Supports colour and black and white printers*
* Map scrolling and zooming facilities

Features Include:-

* Motorway service stations included
* Road Bias facility for six classes of road
* 10 levels of magnification to a 1 mile scale
* Mileage scale bar
* National grid coordinates
* Colour palette requester
* ARexx support - over 50 commands
* Vector mileage calculator
* 3D look user interface

GBRoute Plus is available from most good Amiga dealers

Telephone: 0706 224531 - Fax: 0706 225320

Complex Computers-2 The Arcade, Waterfoot, Rossendale, Lancs BB4 9AF

Dealers Contact: Leisuresoft, HB Marketing, SDL, Lazer Distribution, Centresoft/IBD

Pat Kelly test drives a new wide carriage printer

Printer Of The Month

Fujitsu DL1200

In the disciplines of graphic design and accounting a wide carriage printer, habitually the domain of the dot matrix printer, is at the least useful and sometimes an essential peripheral. Many designers require their designs to be output on A0 paper size and would prefer to have to tile four A2 sheets together, using a wide carriage printer, rather than to paste 16 A4 sheets together, using a narrow carriage output. Of course, professional designers would output directly onto A0 plotters, but not all can afford such luxury. Those working with spreadsheets need no explanation of the importance of having them output onto wide paper. There are other applications where wide carriage printers may be used, but most are for design and business purposes.

The Fujitsu DL1200, launched in September 1990 as the wide carriage version of Fujitsu's range of 24-bit printers, has recently had £50 cut from its RRP. This brings its price below £500, which, while not remarkable, is about par for printers of its platen size. Its physical size is somewhat smaller than that of other wide carriage printers, due to the unorthodox position of the printhead, and serves to provide more free desktop space.

Once the printer has been plugged in, the Amiga must be assigned a suitable printer driver. As the Fujitsu DL series emulates the industry standard EPSON printers, the correct driver is the EPSON24 which is easily available and should already be in your devs/printers drawer of any Workbench disk. However, Fujitsu have constructed their own printer driver which is freely available to owners of any DL printer. This is the first time that a printer manufacturer has gone to any effort to help Amiga users with the user-unfriendly Amiga printer drivers. This is a godsend to those users who require the simple "plug in and go" set-up method, although by reading the manual, the setup becomes quite clear.

What isn't made clear is the fact that some Amiga-based software, which uses custom-made drivers cannot make use of the extra carriage width. However, all print outputs which run through the Workbench Preference driver will work satisfactorily.

Most prospective buyers of the DL1200 will have first established that they require a wide carriage output for, perhaps, the reasons explained above, or maybe for their individual purposes. Of course, there are a few wide carriage bubblejet printers available. Although much quieter, these tend to be more expensive and have higher operating costs. So, if on a budget, the dot matrix must be preferred and the Fujitsu DL range is amongst the best for quality and design, which brand it as a good buy.

> *The correct driver is the EPSON24 which is easily available*

The Fujitsu DL1200 is the most compact wide carriage 24-bit printer on the market

Price: £499.00
Contact: Fujitsu Europe Ltd., 2 Longwalk Road, Stockley Park, Uxbridge, Middlesex UB11 1AB.
Tel: 081 573 4444
Fax: 081-573 2643

TEST DRIVE

YES, IT'S THAT SUPER AMIGA!

Commodore CDTV INTERACTIVE MULTIMEDIA

Janet Bickerstaff takes on the technical marvels and gurumakers in the latest additions to Commodore's armoury in the coming CD wars.

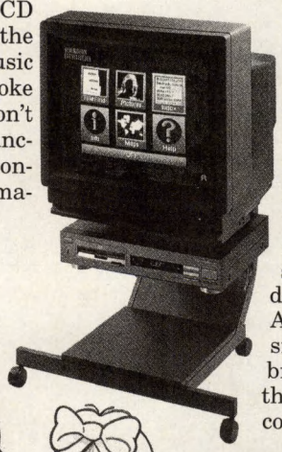
Now it can be said. The CDTV is a super Amiga. Even the TV ads have been proclaiming "Amiga CDTV". No longer must the dealers display the mysterious black box four feet away from the nearest computer!

What is more the A690 CD ROM Drive for your A500 will be here soon. At the World of Commodore Show in November, Commodore said that the A690 would be available in February and a prototype was on display at the Show. The final product was available to Commodore developers in December.

However, why buy an A69O? Buy a CDTV instead and have a second Amiga. It comes with a built in CD ROM Drive, lMB RAM, a MIDI interface, and all the normal Amiga 500 ports, including one for the standard external floppy drive. Connections are also available for a keyboard and mouse. Exciting add-ons are being developed such as Genlock, a Video card and a personal RAM card with up to 256k of memory. Don't forget it plays audio CDs as well!

Karaoke and Kwizoke

CDTV is much more than just another Amiga or only for home entertainment. It is selling extremely well as a Karaoke machine. Pubs, clubs and hotels all over the world are buying these machines. What more could you want - excellent CD audio, words on the screen, plug in the microphone and just sing-along. Music Machine are producing dozens of Karaoke discs. (Just a word of warning - don't forget the copyright laws!) In conjunction with Commodore, they have converted the CDTV into a quiz game machine which is called "Kwizoke".



Info Screens

CDTVs are also being bought worldwide by the corporates for point of sale information, interactive training, and instore promotion. With 550MB on a disc it is becoming considered as a useful medium for advertising and travel information.

Which titles are available?

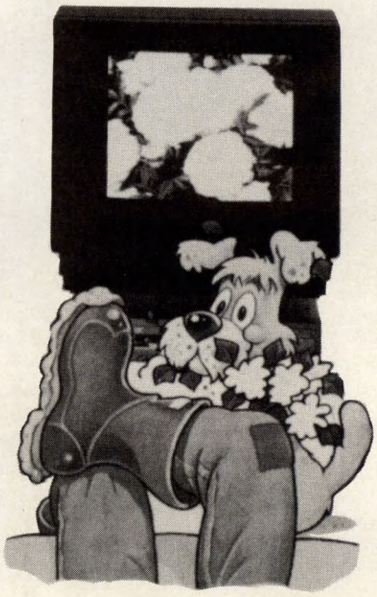
Many are ready now. There are dozens queuing up to get through Quality Assurance at CBM West Chester. We reviewed ten titles in the November issue. Here are another ten. When looking in the shops you will find that most packs have a colour-coded band and are labelled for specific age groups. A red band denotes Entertainment, blue is for Arts and Leisure, mauve for Music, yellow for Education, and brown for Reference. However, there are some packs which do not conform to this excellent idea.

For the Children

Children of all ages will enjoy SNOOPY AND THE CASE OF THE MISSING BLANKET. This is an adventure game, set at two levels, one for the children and one which is more complex. This colourful cartoon runs over a 45 minute period. Snoopy must find all the clues and return the missing blanket to Linus. It is quite a memory test. I feel that a short introduction to the story and its characters would have been helpful.

The award-winning A BUN FOR BARNEY is delightful. This is a talking picture book for the younger children. Magic spots are hidden on the screen, and when selected they display simple games, nursery rhymes and pop-up characters. The story is told by Tom Baker. Pure enchantment for the young ones!

I looked at FUN SCHOOL 3 CDTV for the 5 to 7 year olds. FUN SCHOOL 3 for the under 5s is available and FUN SCHOOL 3 for the over 7s is coming shortly. There are six activities in FUN SCHOOL 3 for the 5s to 7s, covering shopping, travel, sums, telling the time, reading and electricity. It uses guidelines set down by the National Curriculum. There is a range of levels to suit individual children, and the higher level on electricity certainly got me thinking. The title Fun School is apt, for as children play the games they are learning all the time and gaining in hand/eye coordination.



Hidden Bonus

Tucked away under the credits for FUN SCHOOL 3 I found two super AMOS demos. There is one for the AMOS II authoring system for the CDTV showing its capabilties for scrolling, overlapping screens etc. The other is a demo of AMOS 3D and Object Modeller. This allows easy manipulation of backgrounds, 3D car racing, dog-fights or business graphics. Flexible animations bring characters to life. I was delighted with my discovery!

Adventures

From On-Line Entertainment comes CHAOS IN ANDROMEDA - EYES OF THE EAGLE. This is a Sci-Fi Adventure. It is up to you to save the galaxy. However, this is going to take some time and patience on your part. There are 80 pages of instructions for you to read on screen first which is not easy. I must admit we got as far as a forest path and managed to guru the machine. I gave up the struggle - someone else must save the world. However, I did enjoy the background music.

Another adventure is THE CASE OF THE CAUTIOUS CONDOR from Tiger Media. With your help, private eye Ned Peters must discover who killed millionaire Bronson Barnard. The suspects are all passengers on the luxury flying boat "Condor". You have thirty minutes in which to solve the crime. The disc is created as a combination of a radio drama and a detective comic strip. It could take some considerable time to memorise the clues and find the solution to the mystery. I found the curzor movements too sensitive on this disc. It was difficult to select the characters and scenes. The graphics may be OK on a computer monitor but are not so good on a TV screen.

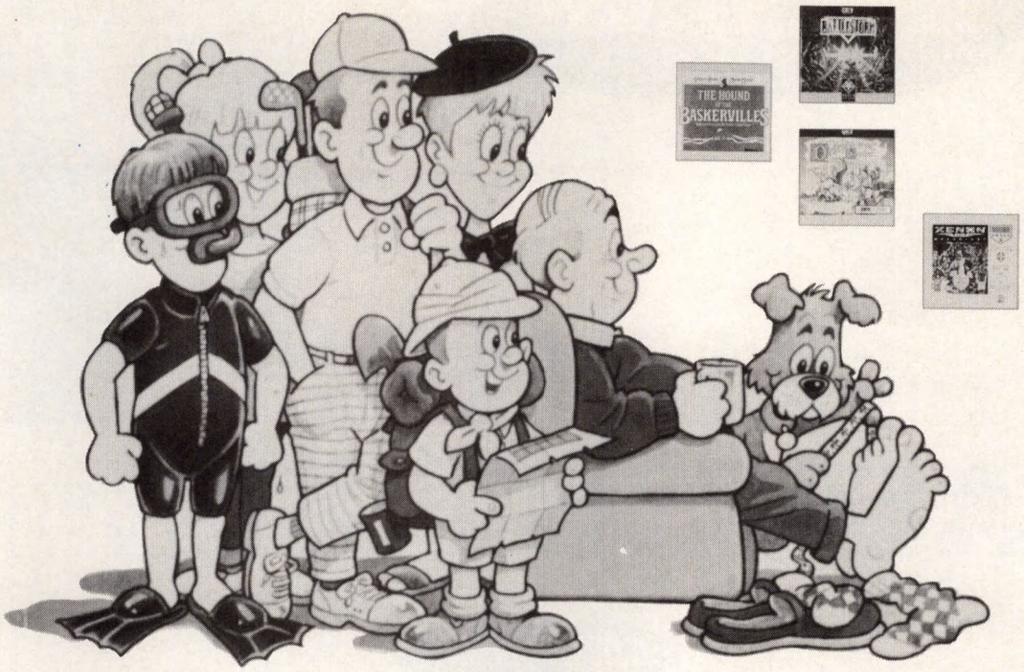
Arts and Leisure

GARDEN FAX - INDOOR PLANTS is an interesting disc for the gardener in the family. The manual is simple with a "Walk Through" section for people who don't like to read manuals - what a good idea! 210 indoor plants are listed. Selection is by criteria, i.e. growing conditions, colour, size etc. or by name, common or botanical. Helpful audio/visual hints and tips are given on caring for indoor plants. A useful disc.

Reference

With a 550MB disc the CDTV excels for reference purposes. DR. WELLMAN is a good example. It is a practical guide to good health and covers a wide range of medical topics including First Aid, travelling abroad, care of the elderly, and a special adult section. Time spent browsing through DR. WELLMAN could mean that you know how to save a life in an emergency. The text is clear and the animations and sound effects are fun.

TIME TABLE OF HISTORY - BUSINESS, POLITICS AND MEDIA is one of a series of titles from Xiphias. It contains over 6000 stories related to key events in history. There is a good introduction and pressing "Escape" gives concise information on using the disc. The stories are linked to hundreds of graphics, maps and sounds and the information is clearly displayed on the screen. Full marks for an absorbing reference disc.



Learning a Language

ASTERIX AND SON comes on three discs. Unless you have some knowledge of French, look at READ WITH ASTERIX first. This is the full length, humerous, story of Asterix, a valiant Gaulish warrior, told as a comic strip with audio (in English) if you wish. (Try and spot the voice-overs!) LEARN FRENCH WITH ASTERIX takes the other two discs. You can hear the story and/or read it in French. Teaching notes are on the menu with translations and grammar. If you have suitable equipment you can record and play back your own efforts. This really is a fun way to learn or revise your French. Certainly I will use these discs over and over again.

From the Fishmonger

Last but not least is the FRED FISH COLLECTION version 1.3 dated September 1991. This contains 530 floppy discs for the Amiga plus other features such as ExpressFish, for producing Fish Disks from the CD ROM in an average of two minutes or less per disk, and GoldFish which is a special selection. There is a CD Sampler with demos of anims and graphics, but not all will run on the CDTV. Updates of the disc will be available to registered users at a modest price.

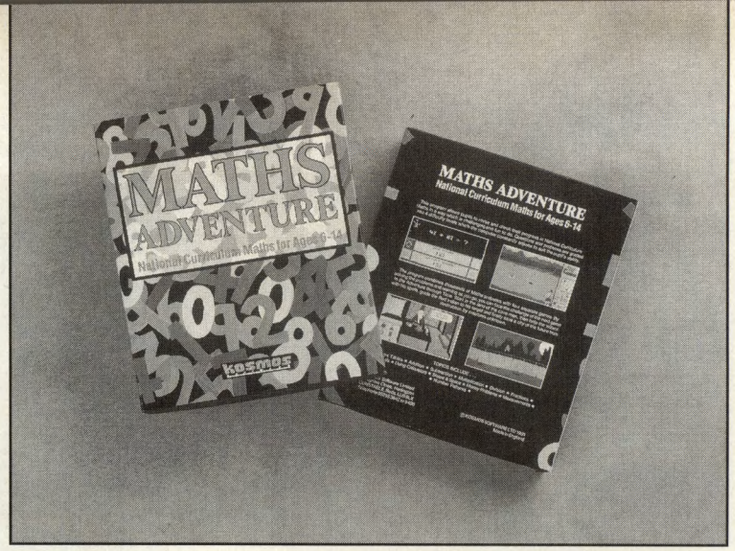
More to come

Reviewing these discs was fascinating. Techniques are improving all the time and I am looking forward to seeing those that are currently in the pipeline.

CDTV DISCS - IN ORDER OF REVIEW

SNOOPY	Entertainment	All ages	The Edge Interactive Media	R.R.P. £34.99
A BUN FOR BARNEY	Education	Ages 3 - 6	Multimedia Corporation	R.R.P. £34.99
FUN SCHOOL 3	Education	Ages 5 - 7	Europress Software	R.R.P. £24.99
CHAOS IN ANDROMEDA	Entertainment	All ages	On-Line Entertainment	R.R.P. £29.99
CASE OF THE CAUTIOUS CONDOR	Entertainment	Teens & Adults	Tiger Media	R.R.P. £34.99
GARDEN FAX - INDOOR PLANTS	Arts & Leisure	Teens & Adults	Intersearch Systems	R.R.P. £34.99
DR. WELLMAN	Reference	Teens & Adults	Digita Multimedia	R.R.P. £54.99
TIME TABLE OF HISTORY BUSINESS, POLITICS & MEDIA	Reference	All ages	Xiphias	R.R.P. £39.99
ASTERIX: READ WITH ASTERIX	Entertainment	All ages	Eurotalk	R.R.P. £19.99
LEARN FRENCH WITH ASTERIX	Education	All ages	EuroTalk (2 Discs)	R.R.P. £34.99
FRED FISH COLLECTION (R.R.P. from Commodore)	Reference	All ages	HyperMedia Concepts	R.R.P. £59.95

EDUCATION



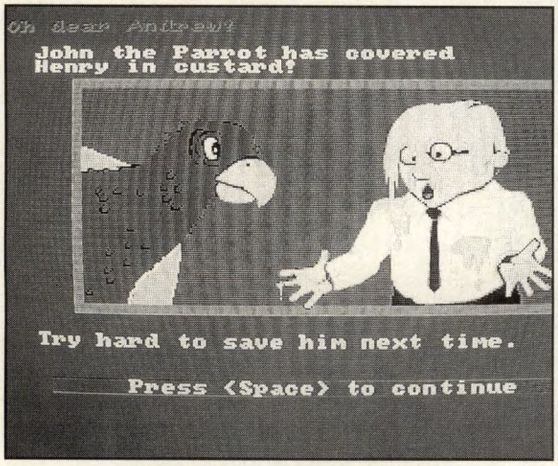
MATHS ADVENTURE

KOSMOS £25.99

This program is designed as a revision aid for children aged 6 - 14 years, in line with the Maths section of the National Curriculum. The program combines education with fun, offering practice in 6 - 12 key areas from addition to fractions to money problems. Successfully answering the questions gains the child rewards in the form of one of the 4 adventure games included in the program.

The options offer a choice of levels for 6 - 7 years, 7 - 8 years, 8 - 9 years and 10 - 14 years recognising the differing needs of each of these age groups. However, the first command is for the player to enter his or her name and age, and the computer finds the appropriate program for that age.

You can choose 3 topics at one time and the computer throws up questions mixed from these three topics. Commands scroll along the screen. If you take too long to respond to the question, the computer reminds you to key in your answer. Depending on the age level you have chosen, six to twelve topics are available.



If, for example you choose the Times Tables, you are given further options of practicing one particular table or a mix of all of them, up to twelves times tables.

There are 15 questions in each section. You can 'rub out' your answer with the arrow key, and the computer will tell you right away whether you are right or wrong. At any time during the question sessions, you can check your progress by pressing escape.

Up To GCSE

You can, if you have extra memory in your Amiga, and a printer, produce a printed record of your progress.

The National Curiculum defines 10 levels of difficulty in Maths where level 10, the most difficult corresponds roughly to the top GCSE grade normally attained at age 16. The Maths problems contained in this program cover a substantial part of the Maths National Curriculum for levels 1 - 4, which are normally achieved between 6 and 14 years.

The age range is for guidance only, and does not mean that a child within that age range can necessarily answer all the questions. The program has the facility automatically to increase or decrease the difficulty level, within the age ranges.

This is a very good program for children to practice what they have learned at school, either at home or under the supervision of a teacher. The reward games are fun. For example, there is Clug the Cave Man who has lost his boat and can't get back to his cave on the other side of the river!

Verdict: Well worth investing in.

Price: £25.99

Short Reports

Hooray for Henrietta, Henrietta's Book of Spells, and Count and Add. Scetlander. All £25.99

These three programs have been produced for the home market as a new venture for Scetlander, who have previously concentrated on selling software to mainstream educational establishments. Each of the programs has a separate parent/teacher section and results can be saved and printed out as a record of progress.

Hooray for Henrietta is fun maths program to help children aged 5 - 12 years to add, subtract, multiply and divide quickly and accurately.

Count and Add with Shades is a maths program for under 7s to help them master counting and adding. It is also suitable for older children with learning difficulties.

Henrietta's Book of Spells is designed for 7 - 14 year olds, to help them improve their spelling and vocabulary.

From Edcational Software Sales, we have Let's Play with Numbers, Let's Play with Words, and Boys and Girls. All £19.95

Let's Play with Numbers is a collection of five programs to encourage early number recognition, the concepts of less than and more than, addition and subtraction. All programs offer visual/ musical rewards. For 4 - 8 year olds at key stages 1 & 2 of the National Curriciulum.

Let's Play with Words also conforms to key stages 1 & 2 for ages 4 - 8 years,and is a suite of 6 colourful programs with sound effects to help with basic word and letter skills.

Boys and Girls consists of 10 reading, counting, sorting and problem solving games for children aged 4 - 9 years.

Contacts:
Kosmos; 0525-53942
Sectlander; 041-357-1659
ESS; 0223-462200

POWER COMPUTING

Optical Hard Disk

External

Optical 128MB + 5 disks (eq. to 600MB) **£1275**

Optical 128MB + 10 disks (eq. to 1GB) **£1450**

A500 requires a suitable SCSI Host adaptor, not supplied

Internal (A1500/A2000)

Optical 128MB + 5 disks (eq. to 600MB) **£1075**

Optical 128MB + 10 disks (eq. to 1GB) **£1250**

SCSI Controller Card for A2000/A1500 **£199**

24 Bit Colour Card

16 million colours

GVP Impact Vision	**£1655**
Rambrandt	**£1500**
Harlequin 1MB	**£1275**
Harlequin 2MB	**£1399**
Harlequin 2MB	**£1520**
Harlequin 4MB	**£1599**
TV Paint 24 bit paint program	**£899**
TV Record	**£169**
TV Display	**£79**

Power Scanner Packs

Power Scanner, 512K of RAM with clock	**£114**
Power Scanner + PC880B	**£159**
Power Scanner + Dual Drive	**£209**
Power Scanner, 512K of RAM + Pro Page	**£249**
Power Scanner, 1MB of RAM + Pro Page	**£270**

Videon v3·0

Digitize and display all 4096 colours in high resolution

Digitize directly from colour video sources (VCR's, video cameras, video disc)

Dynamic hi-res without interrupting multi-tasking

24 bit compatible (Digitize 16·7 million colours)

68030 compatible

Videon v3·0	**£199**
Video Lock Amiga Genlock	**£199**
Videon 3·0 & Video Lock	**£389**

ICD Flicker Free Video

Eliminates all flicker in interlace mode

ICD FFV + VGA Monitor	**£449**
ICD FFV only	**£195**

ICD AdIDE

Inexpensive alternative to a full SCSI interface

AdIDE/40 is for the A2000. Fits under CPU chip card and uses no slot. The 40 pin cable included connects it to a standard 3·5" hard drive. **£79**

AdIDE/40 Kit is for the A500. It allows you to replace an internal drive with a quantum low profile hard drive. Includes cables, hardware and a shuffle to allow an external drive to be DFO. **£99**

AdIDE/44 is for mounting a 2·5" drive inside the A500. Includes 44 pin cable and mounting brackets. **£99**

AdSpeed 14MHz replacement processor. On board RAM cache. No soldering.

AdSpeed	**£149**
AdSpeed + IDE/40	**£259**
AdSpeed + IDE/40 kit	**£269**
AdSpeed + IDE/44	**£260**

Novia Series

Smallest hard drive, fits inside A500

Novia 20MB **£199** Prima 52QMB **£299**

Novia 40MB **£299** Prima 105QMB **£449**

Novia 60MB **£449** Shuffle Board **£19·99**

Novia 85MB **£550**

AdSCSI 2080

Hard drive interface

ICD AdSCSI 2080 0MB	**£129**
ICD AdSCSI 2080 2MB	**£189**
ICD AdSCSI 2080 4MB	**£249**
ICD AdSCSI 2080 6MB	**£309**
ICD AdSCSI 2080 8MB	**£369**

A500

Amiga 500+	**£399**
Amiga 500+, 2MB	**£445**
Amiga 500+, 20MB Internal hard drive	**£600**
Amiga 500+, 52QMB GVP hard disk	**£780**
A1500, A3000 also available	**£POA**
Monitors and printers also available	**£POA**

Chips

256K x 4 DRAM **£5** 4MB x 8 Simm **£150**

1MB x 1 DRAM **£5** 8372 Fatter Agnus **£39**

1MB x 8 Simm **£30**

A3000 Static Column RAM **£24**

Miscellaneous

Power Mouse	**£15**
Optical Mouse	**£29·95**
Replacement optical mouse mat	**£9·95**
A500 Dust Cover	**£9**
Maxell multi colour branded disks (10)	**£9·95**
Floppy disk	**£POA**

Blitz Amiga

Back up disks at lightning speed

Stops all external drives from clicking

Contains anti-virus from being written into the bootblocker **£25**

PC Emulators

KCS PC Power Board	**£235**
KCS A2000 Power Board, includes MS-Dos 4·01, GW Basic, Shell, Dos-Help & on-board memory	**£209**
Without Dos	**£179**
Adaptor for A1500/A2000/A3000	**£69·95**

Progressive Peripherals 68040 Accelerator Board

25MHz Motorola 68040

Built-in maths co-processor

Expandable up to 32MB of RAM

Software compatible with all 68040 family processors

Many more features

0MB RAM **£1449** 16MB RAM **£2109**

4MB RAM **£1569** 32MB RAM **£2525**

8MB RAM **£1689**

Bare SCSI Hard Drive

52 Quantum **£199** NEC 45MB **£179**

105 Quantum **£299** NEC 100MB **£279**

(suitable for GVP Combo or GVP HC or Nexus HC)

Send your order to Power Computing Ltd, Unit 8 Railton Road, Woburn Road Industrial Estate, Kempston, Bedford MK42 7PN

Ring your credit card order through on **0234 843388 (10 lines)** or fax your order on **0234 840234**. Technical Helpline **0234 841882**

All prices include VAT, delivery and are subject to change. Specifications are subject to change without notice. Next day delivery £4·50 (U.K. mainland only), all trademarks acknowledged.

Power Computing SRL Italy, Via Delle Baleari, 90, 00121 Ostia Lido, Roma
Tel (06) 5646310 (2 lines) Fax 5646301

Power Computing France, 15 Bld Voltaire 75011, Paris France
Tel (1) 43570169 (6 lines) Fax (1) 43380435

Power Computing U.S.A., 21 South 5th Street, Suite 900, Philadelphia, PA 19106
Tel 215 922 0050 Fax 215 922 0116

SEE BELOW FOR COMPETITION

WIN

Tel 0257 276800
Main office & 24 hour order line
Fax 0257 274753
Help desk 0490 3284
Weekdays 3–4pm
Overseas orders please add £5.00.
All prices include P+P and VAT.

WITH *Intraset Ltd*

Our compendium of gaming software uses your computer's intelligence and logic to predict winners and advise you on strategy. Whether you're an experienced punter or a novice, with a little time and our range of software, you can maximise your winning potential.

'A licence to print money' Mr FC Hammond of Essex who won nearly £10,000 in 16 weeks

'We have won many thousands' Mr PE Roberts of Dorset who so far has won more than £46,000

*Copies of these and other endorsements from actual customers are available on request.

COURSEMASTER
Our proven horse racing program for both FLATS or JUMPS £24.95

*NEW
TRACKMASTER
The Greyhound Racing Tipster £19.95
Coursemaster & Trackmaster Twin Pack **£39.95 (Saving £4.95)**

Using simple information from the racing card in daily papers or the racing papers, COURSEMASTER and TRACKMASTER will predict with consistent accuracy.

The winner is predicted as well as second and third places for tricasts. The programs also mention attractive long shots, recommend types of bets and most importantly warn when not to bet.

Successful betting extends beyond merely picking the winners and COURSEMASTER and TRACKMASTER will assist in managing your bets. They work out your winnings on the most popular types of bet including SINGLES, DOUBLES, PATENT, YANKEE, CANADIAN, print out your betting slips, and even maintain your betting bank account. SYSTEM BETS will regularly provide a system for MAJOR WINS with small stakes – try it and surprise yourself.

COMPETITION
Details and rules

Our company likes to see people winning, which is why we're running our fabulous 'Win a pc competition'. With every purchase you make, you will automatically be entered into the draw. You can also enter for free by sending a postcard to INTRASET.

1st prize – PC NT286 Colour
2nd prize – Complete set of Intraset Business and Gaming Software **3rd prize** – Complete set of Intraset Gaming Software **5 runners up** will each win their choice of one Intraset title.

Intraset's decision will be final on all matters.
Send an SAE for list of winners.
Draw dates 28/2/92 and 28/9/92

SPECIAL OFFER
POOLSMASTER and COURSEMASTER together for £44.95 (Saving £4.95.)

Our complete gaming suite: £110.00
POOLSMASTER (British & Australian), PERM-MASTER, SPOT-THE-BALL, COURSEMASTER, TRACKMASTER
Saving £22.70

POOLSMASTER British or Australian £24.95 each.
Poolsmaster British and Australian **£44.95 (Saving £4.95)**

The Football Pools Predictors

Developed after years of detailed study, POOLSMASTER uses a unique scientific formula to predict Home, Aways and Draws. The FORM PREDICTION option analyzes result possibilities with amazing accuracy. The unique indexing system allows for quick entry of fixtures and results, and updates itself season after season so there is no need to buy a new copy each year. Poolsmaster also contains a unique coupon number sequence predictor.

Together, both Poolsmaster editions cover **all** British league and cup matches and the Australian league.

PERM-MASTER £19.95
The perfect companion for Poolsmaster

Designed for users of PERM systems, PERM-MASTER ends the agony of checking by doing it for you. It comes complete with several of the top perms built in but you can also create your own with the unique PERM EDITOR and PERM CALCULATOR features. PERM-MASTER is fast and easy to use and can be used for most block and single line perms.
Additional discs of top perms are available at £14.95 each.

SPOT-THE-BALL £17.95

There is no more need for counting 'x's or using messy rubber stamps. Simply tell your computer where you think the ball is using the screen template provided. It will give you a print-out of up to 540 micro-fine crosses in your chosen shape or it can chose at random for you. SPOT-THE-BALL learns week after week and builds up a database of results for the SEQUENCE PREDICTOR OPTION.

GUIDE TO POOLS AND PERMS £14.95
The definitive guide to Pools permutations and betting systems

Written by the experts responsible for our successful software range. Master the fine art of prediction by reading this fascinating in-depth explanation of betting systems and perms. Plan a campaign for that elusive big win and use this books' tips on selecting the best matches and races and how to use perms to maximum effect on Pools, Horses and Dogs.

INTEREST-FREE CREDIT

Spend over £80 and spread the cost at no extra charge! (Cheque purchases only.) Simply divide your order by 4 and send us 4 cheques each with your name and address and cheque guarantee number: Date the first cheque with today's date and post-date each of the other cheques by one month ie. 1/5/91, 1/6/91 etc. We will then hold each cheque until it is due.

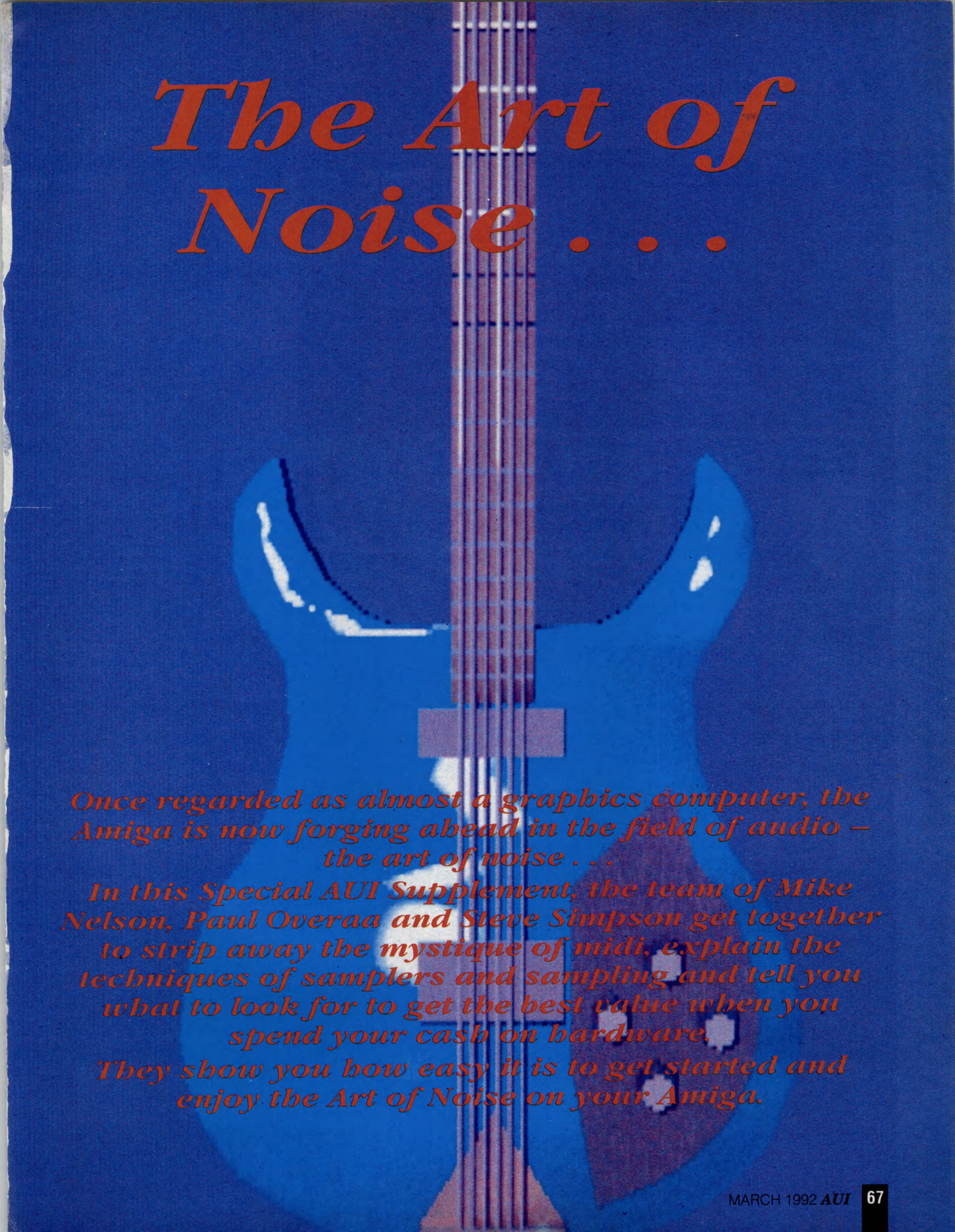
All programs available for IBM/PC & compatibles, all Amstrad PC's, Amstrad PCWs, Atari, Amiga and CPC 6128. Coursemaster, Poolsmaster British and Trackmaster are also available for all Amstrad CPC's, all Spectrums and C64 & 128.

Intraset Ltd

Send an SAE for full catalogue

Send cheques or postal orders to INTRASET LTD (DEPT AUI) **FREEPOST**, 10 Woodside Avenue, Clayton-Le-Woods, Chorley, Lancs. PR6 7BR.
Phone or Fax for lightning service. All major credit cards accepted.

The Art of Noise . . .



Once regarded as almost a graphics computer, the Amiga is now forging ahead in the field of audio – the art of noise . . .

In this Special AUI Supplement, the team of Mike Nelson, Paul Overaa and Steve Simpson get together to strip away the mystique of midi, explain the techniques of samplers and sampling and tell you what to look for to get the best value when you spend your cash on hardware.

They show you how easy it is to get started and enjoy the Art of Noise on your Amiga.

Samplers and Sam

The Amiga has always had very special sound capabilities which make it stand out from the competition. Without being a technical genius or a recording studio engineer, you can, with Mike Nelson, enter into the fascinating world of sound sampling, sample editing and sequencing.

Over the last eighteen months, there has been something of an explosion in both sound hardware and software available for the Amiga, and there is a considerable variation in price, performance and quality, well enough to confuse and confound the beginner. *AUI* has reviewed most of the packages in detail over the months, so the information here will be relatively brief, allowing us to concentrate on specific advantages rather than minute details of specification.

Firstly, though, some preliminary stuff for real beginners.

Sampling theory

This subject may seem complicated at first, but don't worry if you haven't seen a physics book in a squillion years (good move), as the principles are pretty straightforward. Sound is carried through a medium like air as a series of vibrations of the air molecules as shown in the waveform diagram below. The source of the sound, for example a string on a twanged guitar, provides the energy to get the ball rolling, and this energy is transferred via your ear, the drum and those tiny bones, to the detection apparatus deep inside your head.

Grooving...

The rest of the story gets a little involved with perception and nerves but the general idea is that vibrations are transferred between different carriers. The entire HI-FI industry is all about recording those vibrations and reproducing them somewhere else using storage devices. For instance, vinyl records, (soon to be obsolescent, we are told), employ a stylus which vibrates in a groove whose shape ultimately corresponds to the music used to generate it. Amazing as it may seem, this analogue system works surprisingly well, as does a cassette tape which uses magnetised particles to store the original sound.

Sampling is closely related to conventional recording techniques, except that the information describing the sound is stored digitally as a series of binary 1s and 0s, making it available to computers. This is the principle behind the Compact Disk.

Anyone who has heard a CD (and there can't be many who haven't these days as they are what is replacing vinyl) will know the sound quality of even a cheap player is awesome, compared to an equivalent record deck, with no added noise from the reproduction apparatus. Clicks, pops and hiss are a thing of the past! How does it work?

> *The computer can be programmed to play different portions of a sample over and over.*

Pick a number between 0 and 16384. That's how a CD works. An Amiga uses 8-bit samples of -127 to +127. A sample is a value ascribed to the volume of the sound (the amplitude or displacement on the Y-axis of the graph) at a given moment in time. We said earlier that a sound is transmitted as a series of vibrations of air molecules. The volume of the sound is naturally going to be in line with the amount of energy put in to the system: the louder the sound, the bigger the displacement of the air molecules, ear drum, bones etc.

Any sound, no matter how complex is just a series of displacements, and reproducing them digitally is simply a matter of testing the source every so often and ascribing an arbitrary value for the amplitude. Thus a sound is broken down into a string of individual amplitude variations (a sample), so this testing is known as sampling and requires an analogue to digital converter.

Enter, stage left, the sampler. This box fits between your sound source and the computer, and thousands of times every second it tests the amplitude of the incoming wave to generate a sample - a figure between -127 and +127 on the Amiga. These numbers are stored in memory or on disk until they are to be used by the Amiga's sound hardware. Generating sound from the numbers is simply the reverse process of sampling and is performed by the built-in digital to analogue converters. A CD player uses a laser to read the binary values off the disk before passing them to the D-to-As and the outside world.

So far, so good, but what are the intrinsic differences

pling

between CDs, and Amigas? Can an Amiga generate sound of the same quality as a CD? Alas, the answer to this is no it cannot, as although the Amiga has excellent sound capabilities, far and above any other machine, it still does not really come close to a CD. The reason for this is partly explained by the lower resolution of the samples - using 8-bits to describe something can't be as accurate as using 16-bits. The other parameter to consider is the sampling frequency. This is the number of samples of the waveform taken every second, and you can see that the more of these there are, the more accurate the overall sound.

It's all about providing the listener with the maximum information to describe the sound, and the standard Amiga is only able to deal with about half the number of samples that a CD player processes, so the quality cannot be as great. However, CD players weren't widely available when the Amiga was born seven years ago, and sooner, rather than later, the computer technology will catch up, but for now we'll stick to current capabilities.

Samplers

The hardware part of the equation is where most people will start, so rather than fly in the face of tradition, we'll follow suit. As with anything from cars to Hi-Fi, there is a wide range of possibilities available, and the basic premise that "You get what you pay for" has never held more true. Most samplers these days plug into the parallel printer port of the Amiga, although some older ones used a joystick port. The vast majority are completely self-contained with the plug forming an integral part of the box like the GVP model illustrated, but this can be inconvenient if your computer is located under a desk shelf as you will need to use the gain controls (see later) for optimal sampling. The Oxxi SoundMaster has a conveniently long lead to connect itself to the computer, so gets an instant plus point from me!

Samplers usually start off at around £25-30 for a simple mono affair with some basic PD software to drive it, so for the price of a game, you could get stuck in. The next range, up to about £100, is full of very impressive hardware with stereo inputs, and these tend to come supplied with their own powerful software to edit samples and put in special effects, more of which in the next section. Personally, I think the extra money is well spent in moving to the likes of SoundMaster, GVP's Digital Sound Studio, and Perfect Sound 3, as the hardware is much more flexible and the sound quality appreciably better. I've never played with the £200 plus samplers, but these are aimed more at semi-professional musicians and CDTV developers, anyway!

In discussing hardware, the sampler is only one part of the story as the source is naturally just as important. You can't expect to get crystal clear samples if you are sampling a distant radio station under a motorway bridge, so the optimal results will be obtained from a digital source such as CD. A high quality cassette tape deck or video should also suffice, provided the original recording was decent to begin with. The golden rule is you will always lose something when copying sound, so if you start off on a dodgy footing, things can only get worse.

Connecting the source to the sampler is usually just a matter of taking the outputs which would normally go to the amplifier and plugging these into the box of tricks. The only problem is if you are using a stereo source with a mono sampler and in order to get both chan-

CONTINUED

nels a Y-splitter, costing all of £2 from Tandy, with two inputs and one out is required.

Amiga Sound

Amigas are pretty consistent across the range in terms of their sound output, but the final destination can make a big difference. There's little point in making wonderful stereo samples if you're listening to them through the mono speaker of your monitor. Even the stereo 1084's do not do the Amiga sound apparatus justice and the best way to blast the neighbours is through your Hi-Fi system. The Amiga has standard left and right "phono" type plugs, just like any separates Hi-Fi, and connection to an amplifier with some meaty speakers is just the job. Several manufacturers can supply a small amp or active speakers specifically for Amigas and the overall sound can be greatly improved by using Omega Projects' Sound Enhancer box, reviewed in the *AUI* January issue.

Software

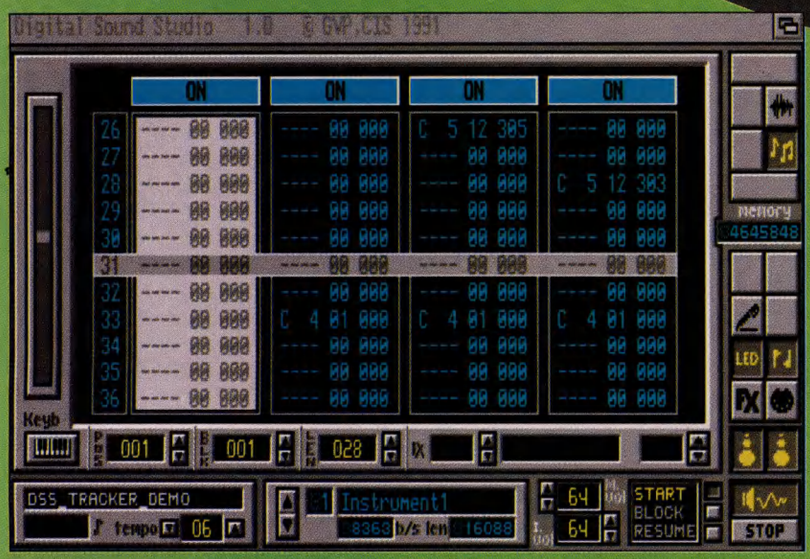
The boundaries between music and sampling software have become blurred with the introduction of sequencers, but out and out MIDI programs are discussed elsewhere in this supplement. This section is concerned with the programs that drive the sampler hardware, and also process the sounds afterwards, and this is really the most exciting part of the business.

Most of the initial wave of samplers on sale were cheap and cheerful affairs which came with very simple, and often PD, software. There's nothing automatically bad about that, and such samplers are still available today at bargain basement prices, but technology has moved on.

> *Pick a number between 0 and 16384. That's how a CD works.*

It was Audiomaster from Oxxi which was the first truly powerful sample editor/special effects package that paved the way for others to follow. Now its fourth version is about to be released and it does have some stiff competition from other packages like Audition 4 and A-Sound Elite which usually share similar characteristics with subtle differences.

Sampler control is fundamental to this software, and all parallel port samplers are supported, with specific drivers to cope with the individual facilities of the different hardware. For instance, Soundmaster has a built-in microphone which is controllable from the Audiomaster III (and others) program, while Perfect Sound 3 has a digital gain control. Other than these subtleties, all the software needs to do is to tell the sampler how often to take a reading and manage where the data goes. This part is fairly easy to suss out, and most of the secrets of successful sampling are in choosing the correct sample frequency and also adjusting the gain (input level). This ensures that things are not too loud so as to swamp the hardware, generating all 127s, or insufficient sound to register anything.



Frequency

Sample frequency is worth discussing further as it is important for a number of reasons. Firstly, the more data you have, the better the sound quality on reproduction. This is fine, but there is the caveat that bigger samples mean more memory and disk space is required to store them - the 880K limit of current Amiga drives will seriously limit you from using a high sampling rate for long samples, so a hard drive and loads of RAM are essential. Thankfully, reasonable samples of decent quality can be generated at a lowish frequency of 8 kHz, but I find the best compromise between sample size and clarity is obtained using a rate of 14-20 kHz. The table below shows the approximate amounts of memory required for different sample frequencies.

The packages mentioned all have monitoring modes to allow you to optimise the gain levels. They usually have a kind of oscilloscope display so you can tweak the controls until clipping of the waveform (see Glossary) is eliminated. Once this is accomplished the "GO" button is pressed and the computer reads in the data. It's usually a good idea to save this straightaway in case you mess up the sample with a bit of over-enthusiastic editing.

Cut and Paste facilities are provided for you to get rid of the inevitable gap at the start of the sample and any bits in between that you don't require. You can also insert bits from other samples previously stored for extra effects. The best packages, however, allow you far more scope to add in echoes, delays and other special effects, many of which can be applied in real time. This means that as the sound is coming in from the sampler, it is processed by the software and fed straight back out again without any significant delay. So you can use your Amiga to generate strange echoes or pitch bends, making your kid brother sound like Pavarotti! (Well almost!).

There are a number of filtering processes which can be applied to a sample to optimise the sound quality, even to the degree of patching up a pretty dodgy source. Audition 4 is particularly good at doing this as it allows you to test each effect before it is actually hard wired into the sample data, so you can lift the bass or treble, or cut out certain frequencies (a bit like Dolby does).

Sequencing

Sequencing is a relatively new innovation in sample editors, being developed by Oxxi in Audiomaster III, copied by

GVP

GREAT VALLEY PRODUCTS INC

QUALITY AMIGA PERIPHERALS WITH 2 YEAR WARRRANTY

Silica Systems are pleased to present the GVP range of peripherals for the Amiga. GVP are the world's largest third party manufacturer of peripherals for the Amiga and have a reputation for high specification, quality products. The company was founded only three years ago by a man who understands the Amiga - Commodore's ex-Vice President of Technology. He, along with a team of Amiga experts including other ex-Commodore staff, can claim to understand the add-on requirements of Amiga owners better than anyone. Not only do GVP provide the peripherals that Amiga owners want, they also offer peace of mind, with a 2 year warranty on their products. So, if you are looking for the very best in Amiga peripherals, look no further than GVP.

52Mb HARD DRIVE

FOR THE AMIGA 500

- **52Mb HARD DISK DRIVE** New state-of-the-art 1" internal Quantum hard disk drive.
- **LIGHTNING QUICK 11ms ACCESS** A 1,100K per second transfer rate makes this the fastest hard drive available for the Amiga.
- **LEADING EDGE TECHNOLOGY** High-tech custom VLSI and Faaast ROM chips.
- **8Mb RAM SOCKETS - UNPOPULATED** Inside every unit there are sockets to expand the Amiga's RAM by 8Mb.
- **USES EASY-TO-FIT 1Mb/4Mb SIMMs** To upgrade the memory of your GVP HD8+ up to 4Mb, please quote order ref: MEM 3639 at £49.95 per megabyte. Alternatively, to upgrade your HD8+ to 8Mb, please order 2 MEM 3849 at £199.95 per 4Mb SIMM.
- **CUT-OFF SWITCH FOR GAMES** The GVP HD8+ features a unique switch to 'cut off' the hard disk for games that won't work with a hard disk. Most other drives require unbolting from the Amiga.
- **'MINI-SLOT' EXPANSION** This slot has been built-in to allow future expansions to be made without using risky 'Pass-through' techniques.
- **EXTERNAL SCSI PORT** You can add up to 6 external SCSI devices, eg CD-ROM, tape streamers, additional hard drives, scanners, etc.
- **STYLE CO-ORDINATED** The GVP HD8+ is perfectly matched in colour and style to the Amiga 500.
- **DEDICATED PSU + FAN** Following Commodore's recommendations for Amiga peripherals, the GVP HD8+ is supplied with its own external power supply and cooling fan.
- **FREE 2 YEAR WARRANTY**

SOUND SAMPLER

This is a complete low-cost sound and music solution for the semi-professional and the audio hobbyist. The system consists of a small, high quality 8-bit stereo sound sampler that connects in to the parallel port on any Amiga 500, 1500, 2000 or 3000. Combined with one of the fastest, most powerful and easy-to-use sound and music editing programs available.

Any RCA-type audio source can be connected to the sampler, giving you a vast array of effects such as, filter, reverb, echo, fade in/out, etc. Supports MIDI instruments and can create songs in multiple file formats including Sound Tracker.

- *8-bit Stereo Sampler*
- *Plugs into parallel port*
- *Extensive editing features*
- *Works with all Amigas*

£89.95 INC VAT - Ref: MUS 2500

WHAT THE PRESS SAY .....

'Superb build, excellent aesthetics and blinding speed make this the best A500 hard drive...' - AMIGA SHOPPER

'GVP claims this is the fastest hard drive in the world and none of our tests could prove that wrong.' - AMIGA SHOPPER

'Overall: Untouchable. THE choice.' - AMIGA SHOPPER

'Still the best hard drive .... 92%' - AMIGA FORMAT

'The fastest hard drive we've had the pleasure of using.' - AMIGA COMPUTING

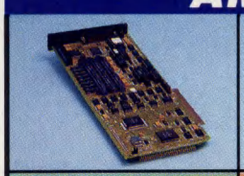
GVP HD8+ 52Mb HARD DRIVE

£399

INCLUDING VAT & DELIVERY - ref: HAR 0852

£599 WITH 105Mb HARD DISK - ref: HAR 0905

AMIGA 1500 + 2000 + 3000 PRODUCTS



22MHz ACCELERATOR

- *22MHz 68030 CPU*
- *68882 22MHz maths co-proc*
- *1Mb 32-bit RAM installed*
- *Expands to 13Mb 32-bit RAM*
- *32-bit SCSI controller on board*

This low cost, quality 68030 accelerator, memory upgrade, SCSI device interface and 68882 maths co-processor board offers the perfect introduction to low cost upgrades for the Amiga. It is supplied with 1Mb 32-bit RAM, and can be upgraded to 13Mb 32-bit RAM. Runs approximately 7 times faster than a standard Amiga 1500/2000.

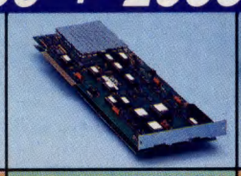
£599 INC VAT Order Ref: UPG 1922

33MHz ACCELERATOR

- *33MHz 68030 CPU*
- *68882 33MHz maths co-proc*
- *4Mb 32-bit RAM installed*
- *Expands to 16Mb 32-bit RAM*
- *32-bit SCSI controller on board*

This fast 68030 accelerator, memory upgrade and SCSI device interface board delivers uncompromising speed and performance without a high price. It can take 16Mb 32-bit RAM and is supplied with 4Mb 32-bit RAM installed along with a 68882 maths co-processor. Runs approx 11.5 times faster than a standard Amiga 1500/2000.

£1299 INC VAT Order Ref: UPG 1933

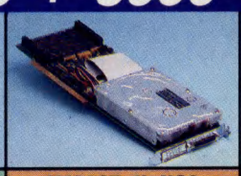


50MHz ACCELERATOR

- *50MHz 68030 CPU*
- *68882 50MHz maths co-proc*
- *4Mb 32-bit RAM installed*
- *Expands to 32Mb 32-bit RAM*
- *32-bit AT hard drive controller*

The FASTEST accelerator card and memory upgrade available from GVP. Featuring a 68030 CPU running at 50MHz, on-card memory expansion to 32Mb of 32-bit RAM and an IDE hard disk drive interface all on one card. Makes your Amiga run approx 13 times faster than a standard Amiga 1500/2000.

£1799 INC VAT Order Ref: UPG 1954



IMPACT II HC8

- *Wide range of drive sizes*
- *52Mb and 105Mb Options*
- *On-card 8Mb memory sockets*
- *Uses easy to install SIMMs*
- *Supports virtually any SCSI device*

This is the equivalent of the HD8+ hard drive, but for the Amiga 1500 and 2000 models. It features the same unmatched facilities and performance giving unrivalled power. With GVP's innovative custom-chip design, easy and user-friendly installation and software, the HC8 is both powerful and simple to use.

£299 INC VAT 52Mb ref: HAR 1352
£499 INC VAT 105Mb ref: HAR 1405

150Mb STREAMER

- *Over 6Mb per minute back-up*
- *Inc GVP's TapeStore software*
- *Mounts in the 5¼" drive bay*
- *Optional external casing*
- *Includes 1 DC150 cartridge*

This high performance media back-up tape streamer device for the Amiga, uses industry standard 150Mb DC150 cartridges. With back-up speeds in excess of 6Mb per minute, the GVP WT150 is a fast and efficient back-up method to offer peace of mind for serious users. The WT150 tape streamer requires SCSI interface such as Impact II.

£749 INC VAT Order Ref: HAR 1715

IMPACT VISION 24

- *768 x 580 PAL resolution*
- *Supports composite video, S-VHS and RGB signals*
- *Broadcast quality genlock*
- *Range of software supplied*

This is the very latest 24-bit Professional Video Adaptor. It features 16 million colours on screen at once, built-in genlock, flicker fixer, frame buffer, frame grabber and digital keyer. Supplied with Caligari 3D modelling and rendering software, Scala IV24 video titling software, plus Macro Paint 24-bit paint package.

£1799 INC VAT Order Ref: VID 7024

SILICA SYSTEMS OFFER YOU

- ***FREE OVERNIGHT DELIVERY:*** On all hardware orders shipped in the UK mainland.
- ***TECHNICAL SUPPORT HELPLINE:*** Team of technical experts at your service.
- ***PRICE MATCH:*** We normally match competitors on a "Same product - Same price" basis.
- ***ESTABLISHED 12 YEARS:*** Proven track record in professional computer sales.
- ***BUSINESS + EDUCATION + GOVERNMENT:*** Volume discounts available for large orders.
- ***SHOWROOMS:*** Demonstration and training facilities at our London & Sidcup branches.
- ***THE FULL STOCK RANGE:*** All of your requirements from one supplier.
- ***FREE CATALOGUES:*** Will be mailed to you with offers and software/peripheral details.
- ***PAYMENT:*** By cash, cheque, all major credit cards, or extended payment plan.

Before you decide when to buy your new Amiga products, we suggest you think very carefully about WHERE you buy them. Consider what it will be like a few months after you have made your purchase, when you may require additional peripherals or software, or help and advice. And, will the company you buy from contact you with details of new products? At Silica Systems, we ensure that you will have nothing to worry about. We have been established for over 12 years and, with our unrivalled experience and expertise, we can now claim to meet our customers requirements with an understanding which is second to none. But don't just take our word for it. Complete and return the coupon now for our latest Free literature and begin to experience the "Silica Systems Service".

MAIL ORDER HOTLINE 081-309 1111

SILICA SYSTEMS

MAIL ORDER:	1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX	**Tel: 081-309 1111**	
Order Lines Open:	Mon-Sat 9.00am-6.00pm	No Late Night Opening	Fax No: 081-308 0608
LONDON SHOP:	52 Tottenham Court Road, London, W1P 0BA	**Tel: 071-580 4000**	
Opening Hours:	Mon-Sat 9.30am-6.00pm	No Late Night Opening	Fax No: 071-323 4737
LONDON SHOP:	Selfridges (1st Floor), Oxford Street, London, W1A 1AB	**Tel: 071-629 1234**	
Opening Hours:	Mon-Sat 9.30am-6.00pm	Late Night: Thursday until 8pm	Extension: 3914
SIDCUP SHOP:	1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX	**Tel: 081-302 8811**	
Opening Hours:	Mon-Sat 9.00am-5.30pm	Late Night: Friday until 7pm	Fax No: 081-309 0017

To: Silica Systems Ltd, Dept. AUI, 0392-68, 1-4 The Mews, Hatherley Rd, Sidcup Kent, DA14 4DX

PLEASE SEND ME GVP COLOUR LITERATURE

Mr/Mrs/Ms: ..... Initials: ..... Surname: .....

Address: .....

.....

..... Postcode: .....

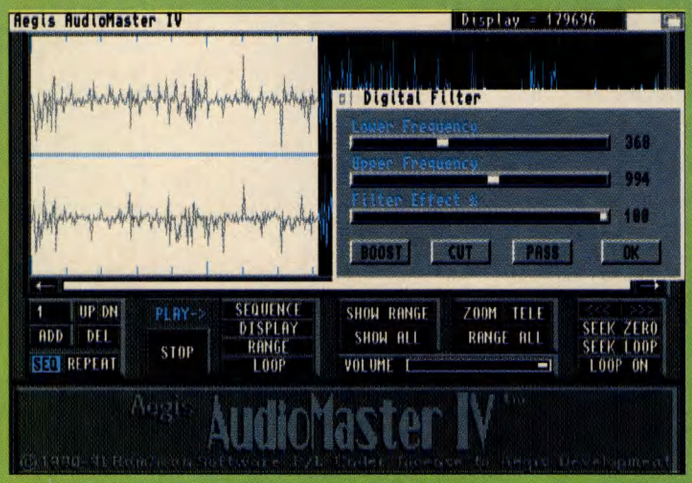
Tel (Home): ..... Tel (Work): .....

Company Name (if applicable): .....

Which computer(s), if any, do you own? 68

E&OE - Advertised prices and specifications may change - Please return the coupon for the latest information.

CONTINUED



Audition 4 and greatly enhanced by GVP in their package. This is not really sequencing in the MIDI sense as the principle involved is different. Listening carefully to much music reveals that a 3-minute track has only perhaps a minute of variation and the other two minutes consist of repeating segments of the initial sound. The computer can be programmed to play different portions of a sample over and over, in any order so considerably lengthening the sound available.

The Future

Add-on sound cards which use 12- or 16-bit samples are becoming available for the Amiga 2000/3000, largely from Sunrize, makers of Perfect Sound and Audition 4. These will require specific software to drive them and Sunrize are looking for support from MIDI suppliers for the new hardware. These boards also have Digital Signal Processors (DSPs) which greatly increase the scope for adding special effects to the sound. Although no official word from Commodore about future Amigas has been released, it is probable that the sound capabilities will be enhanced to CD quality at some point, but this is pure speculation on my part.

Sampling is great fun and an inexpensive way to enter a completely new world with your Amiga. There is no competition for your machine in this department, and the would-be Stock, Aitken and Watermans out there are faced with some very high quality choices at affordable prices. There are only subtle variations between the different samplers and sampling software, but for many these may be important, so take care before parting with your hard earned cash.

The *AUI* Whistle Stop Guide to Samplers and Software.

A.M.A.S. (£69.99):
Just been updated but unfortunately too late for this issue. A full review will be published next month.

A-Sound Elite (£79.00):
This is a Canadian software package which will drive most parallel port samplers, including PerfectSound 3. It is currently the only sample editor we are aware of with a full ARexx interface for "remote control". This is very significant for developers with thousands of files to deal with. Other than that it doesn't really provide much more than Audition or Audiomaster.

Audiomaster IV (£60):
The most recent version, just released as we go to press. This is a significant upgrade to version 3, with some extra effects like oversampling which reduces the whine associated with low sample rates (< 8K). Also has a really nice "disk jockey" sample player and is much faster than previously. Nothing much to choose between this and Audition. The SoundMaster stereo sampler is an optional extra which is well worth playing with.

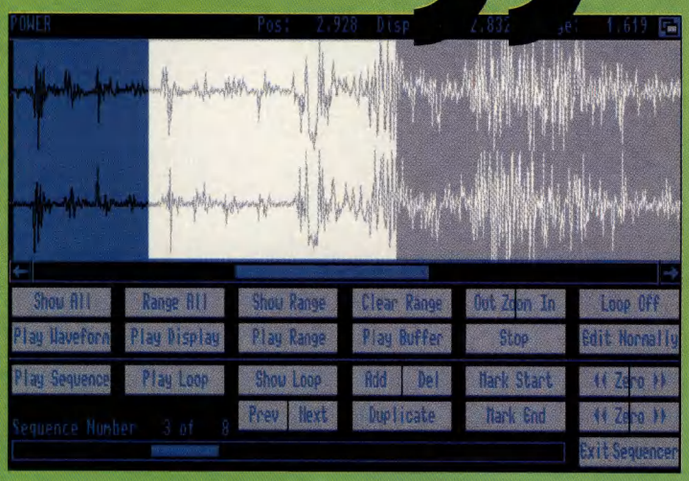
Audition 4 (£49.95):
Very similar to Audiomaster. The big advantage is that you can try out special effects like echoes in real time before they are encoded into the data. This takes the "trial and error" out of the process.

Digital Sound Studio (£89.95):
GVP are renowned for their hard drives and accelerators so this is a new area for them which they've entered with a bang. The kit is complete with a stereo sampler and editing software which is not as powerful at special effects as the Oxxi or Sunrize offerings, but has the best sequencer module and can store up to 31 samples in memory at once making editing a bit more civilised. The sampler itself is great except for the gain knobs which on the review model were oversensitive.

PerfectSound 3 (£61.95):
This is the sampler from Sunrize and is a good companion for Audition. It has the disadvantage of adding 4" to the depth of your Amiga unless you have a parallel port extension cable. Digital gain means you can adjust the levels using the cursor keys of the computer, but this can limit the software used to drive it.

SoundMaster (£99.99):
This is the Oxxi sampler which goes well Audiomaster and has stereo inputs plus microphone jack plugs, with a slider to control the gain. It also has a built-in microphone so you don't even need a sound source although this is not really recommended! A nice feature is the parallel connection is at the end of a cable so you can easily position the sampler to suit your desk arrangements. High quality sampler, with especially high sample rates possible.

> *"Most of the secrets of successful sampling are in choosing the correct sample frequency."*



Suppliers:

Oxxi Contact:
Precision Distribution, 6, Park Terrace, Worcester Park, Surrey, KT4 7JZ (081) 3306911.

GVP Contact:
Silica Systems, 1-4 The Mews, Hatherly Road, Sidcup, Kent, DA14 4DX (081) 3091111

Sunrize Contact:
HB Marketing, Unit 3, Poyle 14, Newlands Drive, Colnbrook. SL3 0DX (0753) 686000

Jargon Guide

Amiga: The computer that does it all. Under standard circumstances, the system is limited to 4 samples being played simultaneously at a maximum frequency of 28 kHz with a maximum length of 128 kb. The last limitation is, in practice, very easy to get around, and most decent sample players will comfortably play a faster rate than 28K.

Amplitude: The displacement of the waveform along the Y-Axis. It is this value which is called the "sample", and thousands of these are required every second, depending on the frequency.

Analogue: Term used in electronics to describe a varying voltage as would be produced by a sound source or microphone.

Clipping: If the input level is too high, the sampler wants to generate a number bigger than 127, which the Amiga can't deal with, so the result is 127 and hopelessly wrong. Lowering the input level stops this. It's also a good way of controlling toe nail growth.

Compact Disc: The modern way of storing music, and nowadays computer data, on a plastic disk which is read by a laser.

Digital: Opposite to analogue. The computer represents an analogue signal such as sound as a number. D-to-As convert it back again.

Frequency: In sampling this refers to the number of individual samples processed per second. The more of these there are, the better the sound quality but there are more computer resources required to deal with them. A CD uses 44,100 samples per second and a standard Amiga can do around 28,000, but clever software can increase this up to 56,000.

Gain: A synonym for this is sensitivity. Variable gain is found on most of the mid-range samplers and is useful as cheaper sources tend not to have variable output from the "line out" plugs.

IFF: Interchange Format File - a genius idea from Commodore to establish a standard format for different sorts of data from graphics to samples and music. Every Amiga program understands these so importing a sample from Audiomaster to Audition is not a problem. The notable exception is Sonix.

Pitch: This is what a musician would call frequency.

Playback frequency: This should be the same as the sample frequency if you want the sound to be identical. Fun and games can be had by ensuring this is not the case, however.

Quality: This is determined by several factors, including the source recording and playback, sample frequency and size of samples (16-bit is much better than 8-bit ones use on the Amiga).

RCA Phono plugs: These are pretty universal Hi-Fi connectors these days and most samplers use them so hooking up your kit is easy. Some cheaper samplers use the jack plugs found on headphones and these are handy for connecting to a Walkman.

Sample: This is a number stored in the computer which corresponds to the amplitude of the waveform at a given moment in time. On an Amiga it varies between -127 and +127 with zero being all quiet.

> *Although the Amiga has excellent sound capabilities, far and above any other machine, it still does not really come close to a CD.*

Sampler: A box of gadgetry that converts an analogue signal to a number (sample) which is fed to the computer.

Sequencing: When referring to sampling this means programming the computer to remember loops which are small segments of a sample that are played over and over to lengthen the overall sound. GVP's Digital Sound Studio has a superb sequencing module so you can create long tracks without necessarily knowing standard musical notation.

Signal to Noise ratio: This is an electronics term which describes how much distortion is introduced by a given component. CDs have a high SNR whereas the hiss generated by a tape indicates a lower value.

Sonix: Music notation program from Oxxi with its own instrument format. Most of the programs listed in the article support it as Sonix is so famous.

Source: This is what you sample, usually a CD, Tape or microphone. The higher the quality here, the better.

Tuning: Altering the sample's playback frequency will change the pitch heard by the listener. Sometimes it is necessary to use a lower sample rate than the original sample (a good reason is it takes much less RAM), so software can be used to adjust the data to ensure the correct pitch is maintained.

Volume: Effectively the amount of energy put into the waveform, and is the displacement on the Y-axis.

Waveform: This is a graph of amplitude versus time that describes how the sample will sound.

Table of sample frequency and memory requirements for 10 seconds of sound.

Sample Rate.....Memory needed
20 kHz.....200kb
10 kHz.....100kb
8 kHz.....80kb

GET INTO

With the Amiga selling like hot cakes and Amiga MIDI software now approaching the quality and power of that found on the Atari ST, the Amiga's MIDI time has come. Here Paul Overaa, explains how you can take those all important first steps towards using and understanding MIDI...

MIDI is a communications framework designed to provide standardized digital communications between all manner of musical equipment. Prior to the adoption of MIDI many musical equipment manufacturers set their own standards and a consequence of this was that linking equipment from different manufacturers was often difficult. The solution was to create a common standard which all manufacturers could use and that standard was the 'Musical Instrument Device Interface' that we now call MIDI.

The creation of MIDI has had many repercussions, not least in that it has allowed computers to be used to read, store, edit and replay the MIDI messages that are generated when MIDI instruments are played. This has led to the development of software which has caused a revolution within the music world... I'm talking here about the MIDI sequencer. Not only has sequencing made life easier for the competent musician but it has opened the up the musical world for everyone else. It is no exaggeration to say that the MIDI sequencer has made it possible for anyone with the slightest ear for music to play things that sound good without having to spend years and years mastering an instrument.

MIDI recognizes the existence of sixteen separate channels and a large class of MIDI messages, known as Channel messages, contain a channel number encoded within the message. MIDI units can be selective about the messages they respond to and by setting up each unit to respond to a different MIDI channel all MIDI messages can be

TING MIDI

sent down the same set of cables with each unit responding to only those messages that have the matching channel number identification.

At the highest level MIDI distinguishes between the channel messages just mentioned and messages of more general interest to the system. I'll talk about the particular messages later but for the moment a few words about what you need to get started equipment-wise are in order...

Equipment to Get You Started

Assuming you already have an Amiga computer you will need three other things: A MIDI interface, a keyboard synthesizer and a sequencer program. You may, if you don't get any supplied with your synthesizer or MIDI interface, also need one or two connecting leads. These are called MIDI leads and they can be bought for a few pounds from almost all music shops.

Keeping The Cost Down

Multi-timbral synths tend to fall into the #150+ range and one possibility is to search for second-hand bargains. Musicians frequently change their equipment and, once the MIDI bug bites, they often trade their equipment for more versatile (and usually more expensive) versions. This means that there is always a regular stream of adverts in the music magazines, local papers. Most music shops also stock second hand equipment which has been taken back in part exchange. Often you'll find synthesizers at around half of the price of the corresponding new models. These pathways are often useful if you want to keep initial costs to a minimum!

Buying A Sequencer:

Amiga sequencers, as all ***AUI*** readers will know, can cost from around £50 upwards (a few heavyweights even reaching the £400 price bracket). The good news is that you don't need to spend a fortune to get started and Gajit's Sequencer One and the Disk Company's Harmoni sequencer are two reasonably priced offerings that come to mind. Dr T's Tiger Cub is a worthwhile investment if you can afford a little extra.

Irrespective of price, most sequencers offer a set of core facilities that allow you to record MIDI data from your synthesizer and play it back. They will also provide comprehensive editing facilities which will enable you to add and delete notes, cut and paste fragments of music and change its key. You can even ask the sequencer to improve the timing of the music you have recorded.

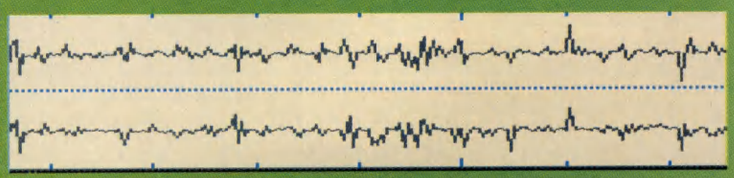
A great many sequencers adopt a tape recorder style approach to MIDI recording and playback operations. The analogy is a good one because, conceptually, a sequencer is very much like a multi-track tape recorder. The main difference is that it records digital data rather than audio sounds. Many products make the analogy very clear and include displays containing buttons for playback, recording, fast forward, rewind, stop etc., just like a conventional tape recorder.

Probably your sequencer will initialize itself to a set of default parameters which suit all general record/play operations. Whichever sequencer you choose there will doubtless be an introductory tutorial in the manual and you should read, and work through, that material at the earliest opportunity.

Buying a Synthesizer:

If you've never seen or heard a synthesizer at close quarters then you are in for a very pleasant surprise: Synthesizers are electronic 'instruments' which can create musical tones by generating, i.e. synthesizing, sound waveforms. They can be used both to invent new sounds and to mimic other instruments such as pianos, pipe organs, flutes or drums. Synthesizers can change from one sound to another very quickly so one moment your keyboard can sound like a piano, and the next it could be sounding like a violin or harmonica.

At one time synthesizers had to be 'programmed' to get the right types of sounds out of them. This is still the case but to ease the burden on the user (voice programming can be a time-consuming job) most synthesizers on the market nowadays provide banks of pre-programmed voices for popular instrument sounds.



Nowadays not only are there MIDI keyboard synthesizers but you can get MIDI guitars, MIDI drum pads and a number of other 'MIDI input' devices. Most people however, whether they are keyboard literate or not, tend to use keyboards for the bulk of their MIDI sequencing work.

This being so most people who are working with MIDI tend eventually, to become familiar with the synthesizer keyboard. What may come as a surprise is that you do not need to become a technically competent keyboard player, you just need to learn enough to find your way around the piano style keyboard.

Professional players often use a special keyboard, called a mother keyboard, which generates MIDI messages but does not make any audible sounds itself. The mother keyboard is then linked to any

GETTING *INTO* MIDI

C O N T I N U E D

number of individual MIDI sound generator units. This is a flexible, but often expensive, approach which will not concern you in your early MIDI days - all budget priced synthesizers contain suitable sound circuit chips. In-built or not the sound circuitry serves two purposes: firstly, it is used to produce sounds when keys are pressed on the keyboard. Secondly, the sound circuits will be activated when MIDI data is received via the MIDI-IN socket.

How much will all this equipment cost? A synthesizer may cost anything from fifty pounds to several thousand pounds and needless to say, the quality of the actual keyboard, the instrument flexibility, and the quality of the sounds that can be produced, will all get better and better as the price of the instrument increases. The good news is that even the cheapest models can sound really good and the established manufacturers (such as Casio, Roland and Yamaha) all produce excellent budget synthesizers.

One thing you will not get with a low priced synthesizer will be a keyboard which can sense how hard the keys have been pressed. Notes will be on or off and that, unless you have a lot of money to spare, is something you must live with.

Synthesizers aimed at the professional market place, and quite a few lower priced synthesizers, will not have internal speakers. These have to be connected to a separate amplifier/speaker system in order to produce sounds you can hear. For home, low volume, use you should however be able to avoid further expense by using your home stereo system. Many budget synths deliberately designed for the home/non-professional market do, however, have small amplifiers and speakers built in.

For general MIDI work synthesizers need to be polyphonic, i.e. able to play many notes at the same time. It is also useful for the synthesizer to be multi-timbral, capable of playing more than one sound at the same time, as well. The reason is that multi-timbral MIDI synths can usually be programmed so that different voices respond to different MIDI channels. As far as the multi-timbral capabilities are concerned just imagine that the synthesizer is not just ONE synthesizer, but several all rolled into one. Treated like this it is not too hard to imagine that each of these hypothetical units could be set up to receive and transmit MIDI data on their own MIDI channels, and that each could be set to play using a particular voice. You may for instance set up the synthesizer so that data received on channel 1 is played with a violin voice, data received on channel 2 is played using a bass-guitar sound, and channel 3 data gets played using a piano sound. Multi-timbral synths vary enormously, luckily such things will always be well explained in the instrument manual.

Where to buy? At one time you'd have to go to a specialist music store to buy a synthesizer and this is still the best idea - the music shop assistants will invariably be musicians themselves and interested in music (rather than just being salesmen). Don't be intimidated about going into a shop full of musicians - you'll find they are only too willing to help. Synthesizers can, of course, also be purchased from shops like Dixons and Laskys. My experience here is that it is much harder to find good advice but if you know exactly what you want these stores, because of their bulk purchase capabilities, can offer extremely competitive prices.

Important Connections

MIDI equipment has at least two 'five pin' DIN sockets. The one marked MIDI-IN is where the equipment receives its MIDI data, that marked MIDI-OUT is where data is transmitted. Sometimes you will also find a MIDI-THRU socket and this provides a duplicate of whatever is being received at the MIDI-IN terminal. Not all types of equipment will understand every type types of messages, and neither will every piece of MIDI equipment send every type of message but this doesn't usually cause much in the way of problems - providing you know which type of messages your particular equipment is capable of sending and understanding.

Linking together a three piece 'Amiga sequencer, synthesizer, MIDI interface' MIDI system... there's really nothing to it. Connect your MIDI interface to the Amiga's serial port D connector. Take one MIDI lead from the MIDI-OUT of the synthesizer to the MIDI-IN of the MIDI interface (this will be the lead that, via the MIDI interface, carries data from the synthesizer to the sequencer program). Connect a second cable from the MIDI-OUT of the MIDI interface to the MIDI-IN terminal of the synthesizer (it is this lead that carries information from the sequencer back to the synthesizer). Switch on, load your sequencer program as per the instructions given in the sequencer manual, and you'll be ready to start experimenting.

The MIDI Interface:

You'll find plenty of these at your local Amiga dealers (and in the ***AUI*** advertising pages). We even had an article showing how to construct one yourself.

They are quite simple pieces of hardware which plug into the Amiga's serial port and provide the opto-isolation and the right physical connections needed for connecting MIDI equipment.

MIDI interfaces cost from around £20 up to well over £100 depending on the facilities provided. Some interfaces contain LED indicators which flash when MIDI data is passing through the interface. The LED indicators are by no means essential but they do help when fault-finding so are they are a useful extra.

Beneath The Surface

If you are a newcomer to computers and music then learning about MIDI can be a rather daunting prospect. MIDI itself may seem almost like magic and there's no doubt that things will make more sense if you know a little about how MIDI actually works.

The things which make message transmission possible are the MIDI terminals. These terminals transmit and receive MIDI messages and it is these messages which sequencers use to collect the information about what you are playing.

When do these numbers get transmitted? It's usually when you do something, touch a control knob or press a note on a keyboard etc. On a synthesizer, streams of numbers which represent such things as the notes being played will be transmitted at the MIDI-OUT terminal. Other types of MIDI equipment send similar streams of numbers and because the meanings of the numbers are standardized one piece of MIDI equipment is able to understand another piece of equipment's messages. To get one unit to 'talk' to another you simply use a MIDI lead to connect them together using the appropriate MIDI terminals.

When you connect a sequencer into a MIDI system it is able to 'read' all of the MIDI messages and 'record' what is going on as you play. Sequencers are not interested in the sounds being made, it's the MIDI messages that hold the magic key. Sequencers then work with numbers - reading, manipulating, storing and transmitting them according to predefined rules. For the sequencer at least, the world of MIDI is a silent world of addition, subtraction and event manipulation which is not that far removed from the operations of a sophisticated calculator.

Before we can talk in more detail about MIDI messages it is necessary to try and clear up a potential stumbling block - hexadecimal numbers and their relationship to decimal and binary numbers...

A Different Type of Conversion

People convert number values all the time... yards to feet, litres to pints, inches to millimetres etc. Suddenly, however hexadecimal numbers come along and throw a spanner in the works. Why? Because it becomes necessary to convert not just one type of unit to another but one type of numbering system to another.

An 8-bit binary number can take values from 0 to 255, from 00000000 binary to 11111111 binary. Computer freaks use binary numbers all the time, not because they particularly want to but because at the it relates to sets of on/off states which let computers represent data from the real world.

There was a time when people actually programmed computers by entering pages and pages of 0's and 1's into the computer memory. Unfortunately it was all too easy to make mistakes and it turned out that life became a bit easier if these binary numbers were represented in hexadecimal form., i.e. base 16 form. What's all this 'different base' stuff? It's easy... and before you say you never did 'bases' at school we are all using different number bases all the time. If you still weigh things in pounds and ounces you're actually using something that comes very close to 'hexadecimal numbering' anyway - it's only the notation that's different.

With our normal 'base 10' numbering system, we group by units of ten. When you add numbers together you add the units first, then remove multiples of ten and 'carry' these over to a 'tens' column. You do a similar operation with the 'tens' column and so on. The only reason that 10 is used for our numbering system is that we found it convenient - we are, after all, born with ten fingers to count on.

When you add pounds and ounces you proceed as follows: You add the ounces and if they come to more than 16 you 'carry' the multiples of 16 into the 'pounds' column...

number or letter you are dealing with...

eg 3A hex = 0011 0110 binary.

To go the other way, to convert a binary number to hex form, peel off bits from right to left, FOUR BITS AT A TIME, and replace them with the corresponding hexadecimal number or letter...

eg 0100 1111 binary = 4F hex.

If you find these sort of conversions awkward or strange - do the same as you do when learning about other things... practice until it becomes easy.

The MIDI Standard Itself

MIDI sends its information in eight bit units. As you'll no doubt know the computer world calls these 'bytes' and a byte can represent a letter, a number, a computer instruction or anything else - providing it can be coded as one of the 256 patterns which an eight bit binary number can represent. MIDI messages then are streams of eight bit numbers and it is the MIDI standard which has defined their meaning.

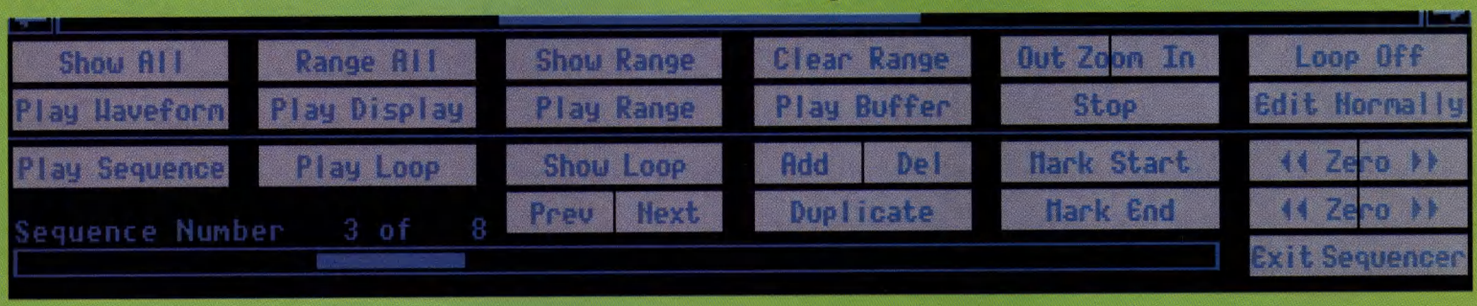
Some MIDI messages can consist of more than one byte. The first byte, called the status byte, is very important because it enables the receiving equipment to tell what type of message is coming in. Any trailing bytes of the message, if indeed they exist, are known as data bytes.

How does MIDI distinguish between status bytes and data bytes? It uses the uppermost bit of each byte - status bytes ALWAYS have the high bit (bit 7) set so these numbers can range from decimal 128 to decimal 255 (10000000 binary to 11111111 binary). Data bytes are therefore restricted to values ranging from decimal 0 to decimal 127 (00000000 binary to 01111111 binary).

MIDI at the highest level distinguishes between channel messages and messages of more general interest to the system. These latter 'System messages' fall into three sub-categories called Real Time, Common, and System Exclusive.

Real Time Messages

These are all single byte MIDI messages, so the status byte is the message itself. All of these messages are time critical which is why they have been designated as short messages. Here are the real time message definitions...



2 lbs 14 ounces	14 + 4 = 18: One group of 16 to
2 lbs 4 ounces	carry and 2 ounces left over
5 lbs 2 ounces	

If instead of using numbers from 0 to 15 for our ounces column we used 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E and F then we could write 2 pounds 14 ounces as 2E ounces. It is this extended numbering system that forms the basis of the hexadecimal notation. The reason it's handy for representing binary numbers is that you only need two numbers or letters to represent eight bits of a binary number. If for example we take the number decimal 47, which could be expressed as (2 multiples of 16) plus 15, we can write it in these three ways...

47	decimal form
0010 1110	binary form
2 E	hex form

Here's the crunch then as far as conversion goes... if you want to convert a hex number to binary just work from right to left replacing each character with the four bits that represent the binary version of the

Binary	Hexadecimal	Decimal	Name
1111 1000	F8	248	Timing Clock
1111 1010	FA	250	Start
1111 1011	FB	251	Continue
1111 1100	FC	252	Stop
1111 1110	FE	254	Active Sensing
1111 1111	FF	255	System Reset

Start and Stop messages are likely to be sent when you start and stop a sequencer or drum unit. The MIDI timing clock is sent at a rate of 24 clocks per quarter note, and it is this reference that enables units to synchronize to a common 'system' time.

Continue messages are sent when you do such things as restart a sequencer by releasing the pause button or restart a drummer by hitting the continue button. They enable units to resume the playing of a sequence from the point where it was stopped.

Active Sensing messages are 'dummy' status bytes that enable equipment to tell if there has been a break in the communications lines. Messages are sent every 300 milli-seconds whenever there's no other MIDI activity. The idea is that if you accidentally pull out a cable whilst

GETTING *INTO* MIDI

C O N T I N U E D

your synthesizer is playing it will be able to recognize the fault and turn off any voice circuitry that is still sounding.

System Reset messages instruct all units of the system to assume a 'just switched on' state.

Common Messages

These are another class of system message intended for all units in a system. The three you'll come across will be these...

Song Position Pointer: By maintaining an internal register (holding the number of elapsed MIDI beats) some equipment is able to send other units messages that enable a sequence to be started from a point other than the beginning. This pointer message consists of a status byte followed by a 14 bit (remember the two 'data' bytes can't use bit 7) value representing the number of MIDI beats (1 MIDI beat = 6 MIDI clocks) counted from the start. Here's the digital layout of the message...

	Binary	Hexadecimal	Decimal
status byte	1111 0010	F2	242
data low byte	0LLL LLLL		
data high byte	0HHH HHHH		

Song Select: This message identifies which song or sequence is to be played upon receipt of a 'start' message. It's a two byte message which looks like this...

	Binary	Hexadecimal	Decimal
status byte	1111 0011	F3	243
data byte	0LLL LLLL		

Tune Request: This single byte common message simply asks each unit within a system to tune itself and, as one might expect, it applies primarily to synthesizers and sound expander modules...

	Binary	Hexadecimal	Decimal
status byte	1111 0110	F6	246

System Exclusive (SYSEX) Messages

Despite the acceptance of the MIDI framework as a communications protocol, it was also recognized that most manufacturers of electronic equipment would need some means of incorporating specialist messages and data. With MIDI SYSEX messages it is only the outside of the information packet, the 'shell as it were, that is fixed. The internal contents, the 'guts' of each message, depends on whosoever created the message in the first place. Here's the overall format...

F7 hex	ID-byte	[any number of data-bytes]	F0 hex
|	|	|	|
SYSEX Status Byte	Manufacturers Identification Number	Real bytes of the SYSEX message	End-of-message byte (called the EOX terminator)

Why use non-standard MIDI messages ?

Who creates SYSEX messages? Anyone who builds MIDI equipment and wants to implement specialist functions which the basic MIDI messages do not cater for. Nowadays there is a trend towards implementing all sorts of voice modification and control functions and many pieces of equipment offer almost full remote-control of the front panel via SYSEX communications. It is in fact these types of facilities that allow patch editors to perform their magic. (Patch editors are programs which allow users to create, edit, store and load synthesizer voices using their computer rather than the front-panel facilities of the synthesizer itself).

Manufacturers are expected to provide details of the formats of their system exclusive messages. Most do and it is usually very well presented.

There are a variety of ways to include SYSEX control and the methods you use will depend both on what you're trying to do and the facilities your equipment has but basically it comes down to two operations: firstly, getting the necessary details from the MIDI equipment manuals. secondly, being able to interpret those details in the right way. Here is an example based on Yamaha's TX81Z expander to give the general idea...

Some MIDI software will provide librarian facilities which includes the ability to receive and store SYSEX dumps from your MIDI units. Music X, for instance, will let you set up 'request-to-send' messages so that the sequencer could ask the TX81Z unit to send some SYSEX data.

A quick look in the TX81Z's manual would confirm that the request-to-send messages are SYSEX messages themselves. Seven are listed and these include single or multiple Voice Dumps (VCEM and VMEM), one or all Performance Memories (PCED and PMEM) and system and microtune details. Yamaha gives the message layouts using 'n' for the TX81Z's basic receive channel, like this...

VCED	F0, 43, 2n, 03, F7	
VMEM	F0, 43, 2n, 04, F7	
ACED + VCED	F0, 43, 2n, 7E, "LM__8976AE", F7	
PCED	F0, 43, 2n, 7E, "LM__8976PE", F7	
PMEM	F0, 43, 2n, 7E, "LM__8976PM", F7	
System Setup	F0, 43, 2n, 7E, "LM__8976Sx", F7	(x = 0, 1, 2)
Micro Tune	F0, 43, 2n, 7E, "LM__MCRTEx", F7	(x = 0, 1)

You want to to ask the TX81Z to send its VMEM data? Well, the manual provides the overall message layout but we have to include the right basic receive channel value. Yes, you've guessed it... it's down to a bit of binary/hex conversion. Suppose your TX81Z is set to channel 15, have we got to make n=15? No, MIDI channels are named as channels 1-16 but internally all units use the equivalent of 0-15 decimal so the number needed in the request-message is going to be the hex equivalent of decimal 14, ie E hex!

In other words the VMEM request	F0,	43,	2n,	04,	F7
becomes...	F0,	43,	2E,	04,	F7

So that's it. If we placed the five hex numbers F0, 43, 2E, 04 and F7 into the initialization string then, when that message was transmitted to the Yamaha unit, the TX81Z will respond (providing it was set to channel 15) by sending back its VMEM voice data.

Don't be frightened of SYSEX control - it gets easier with practice. The trick is to practice until you're happy with the binary/hex stuff and to get used to finding and using the information provided. Yamaha, Roland, Casio etc., all publish a lot of SYSEX data in their manuals, so the technical data IS available. Once you've learnt to use SYSEX control for some simple applications you'll be over the worst of the learning curve!

Channel Messages

I've already mentioned that a large class of MIDI messages contain a channel number encoded in the status byte. Such messages will be intended for any units within a system which have been set up to receive messages on the specified channel. There are two distinct types of channel message... voice messages and mode messages. Voice Messages are used to control an instruments voice, the kind of sound it makes. (Synthesizers contain sound generators which enable a wide variety of different sounds to be produced. Each final sound combination is called a 'voice' and 'voice assignment' is the name given to the process of making sure the right notes are played with the right voice.)

Voice data concerns itself primarily with making sounds... selecting voices, turning notes on and off, bending the pitch of notes and performing control functions which affect the sounds the synthesizer will make. There are seven voice messages available...

Note Off: When a note is turned off, eg when you release a key on a

synthesizer keyboard, three pieces of data are transmitted... a 'note off' status byte, a byte representing the note, and a 'velocity' byte so in binary form a note off message looks like this...

status byte	note pitch	note off velocity
1000nnnn	0kkkkkkk	0vvvvvvv

Note On: Three pieces of information are transmitted when you press a key on a MIDI keyboard - the note on status byte, the key number which represents the note's pitch, and a 'note on' velocity byte. This latter item represents the speed at which the note was struck. As with 'note off' data, keyboards without touch sensitivity will transmit a velocity value of 64 for all notes played...

status byte	note pitch	note on velocity
1001nnnn	0kkkkkkk	0vvvvvvv

If a 'note on' message with a velocity of zero is transmitted then that note is effectively turned off. This turns out to be particularly useful because channel messages (ie voice and mode messages) allow the use of implied status bytes. It's called 'Running status' and works like this... if note on/off messages are being communicated then units that implement running status will send 'note off' data as 'zero velocity note on' messages. A stream of note on/off messages can then be sent as a single 'note on' status byte followed by just the relevant data bytes of all the messages involved.

Polyphonic Key Pressure: Some keyboards respond not only to initial and final key dynamics but respond to the pressure of the key whilst it is being held down. Such keyboards transmit these 'pressure changes' as changes in velocity data using polyphonic key pressure messages (sometimes called 'polyphonic aftertouch')...

status byte	note pitch	pressure value
1010nnnn	0kkkkkkk	0vvvvvvv

Control Change: MIDI makes provision for sending and receiving data from 31 continuous controllers, 32 on/off switches and 29 undefined controllers. The state of these controllers can be modified by sending control change messages which are based on this type of form...

status byte	controller	control value
1011nnnn	0ccccccc	0vvvvvvv

Program Change: These allow a particular 'program' or voice to be selected...

status byte	program number
1100nnnn	0ppppppp

Channel Pressure: This is similar to polyphonic aftertouch but rather than dealing with individual notes it is concerned with a sort of 'average' or overall keyboard pressure...

status byte	pressure value
1101nnnn	0vvvvvvv

Pitch Bend Change: These messages are three bytes long and take this form...

status byte	data low byte	data high byte
1110nnnn	0bbbbbbb	0bbbbbbb

Other Messages

It is possible to connect/disconnect a synthesizers keyboard from the sound generator circuits by using some local control commands. A channel specific 'panic button' message is also available that cancels all notes currently sounding. There are even a set of mode control messages which define a unit's response to MIDI voice messages.

It's not worth looking in detail at all of the messages defined in the MIDI spec because many of the messages available will make little sense in the early days. Things will really only begin to gel when you get involved with practical applications using your own equipment. The important thing is to remember that whenever you press a key on a keyboard, select a program setting, move a controller etc., then your actions MAY may be translated into a MIDI message and transmitted (via the MIDI OUT terminal). Whether this information is used or not will depend on both the individual reception states and the capabilities of the receiving equipment.

I say 'may be translated' because the MIDI standard does not specify exactly what transmission/reception facilities a particular piece of equipment should have. The extent to which individual pieces of MIDI equipment implement various MIDI facilities can vary enormously. Because of this it is necessary, before you purchase a piece of MIDI equipment, to know which MIDI functions are supported and which are not. The 'MIDI Implementation Chart' is a way of presenting this information in a concise, standardised, form...

The MIDI Implementation Chart

You will find these charts in the instruction manuals of almost every piece of MIDI equipment on the market, so it is well worthwhile learning how to understand them.

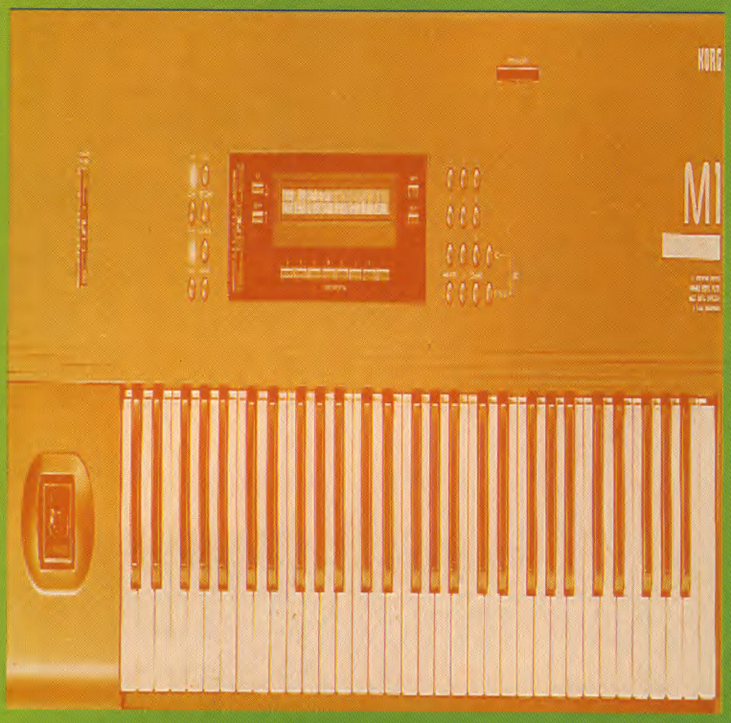
A MIDI implementation chart is essentially a four column table describing MIDI function names, transmission characteristics, reception characteristics and any associated remarks which will assist in the interpretation of the chart. The basic layout, with numbered fields, is shown in figure 1...

GETTING *INTO* MIDI

C O N T I N U E D

Type of Product		0
Model		1
Chart Date/Version		2
Function	Transmitted	3
	Recognized	4
	Remarks	5
Basic Channel	Default	6
	Changed	7
Mode	Default	8
	Messages	9
	Altered	10
Note Number		11
		12
Velocity	Note ON	13
	Note OFF	14
Aftertouch	Key	15
	Channel	16
Pitchbend		17
Control Change		18
Program Change		19
		20
System Ex.		21
System Common	Song Pos	22
	Song Sel	23
	Tune	24
System RT	Clock	25
	Commands	26
Aux Messages	Local ON/OFF	27
	All Notes OFF	28
	Active Sens.	29
	Reset	30
Notes		31

Figure 1: The MIDI Implementation Chart Layout



The fields present in the implementation chart are used to provide the following information...

0: Type of product

1: Name of model

2: Date of chart preparation and version number

3: The data in this column shows the transmission characteristics of the unit, it tells you about the types of messages that the particular unit can send to other units.

4: The data in this column show which types of MIDI messages can be understood by the equipment.

5: This column is used to provide additional relevant remarks.

6: Default MIDI channel number. If channel number is 'memorized' then this will be shown in the remarks column.

7: This entry shows whether it is possible to change the basic channel number of the equipment.

8: This gives the default MIDI mode, the 'power up' mode state.

9: Details of the mode messages sent and received if any.

10: Mode chosen if the unit receives a mode message that it does NOT understand.

11: Range of MIDI note numbers that can be transmitted and received. Often the reception range is wider than the range of notes which can actually be played by the instrument. Notes at the extremes may be automatically transposed up or down until they fall within the range of the sound generators.

12: This entry shows the pitch range of the notes that will sound in terms of the MIDI note numbers. You'll get an indication of the transposition effect mentioned if the true pitch range shown here is less than the reception range given in the previous field (11).

13: Shows whether touch response information ie velocity data, can be transmitted or received. Synthesizers which send such data need to have touch sensitive keyboards but you'll find that most 'non touch sensitive keyboards' units are able to use velocity data being sent from another source.

14: This field gives details of the 'Note Off' velocity characteristics.

15: This section tells you whether the unit can send or receive aftertouch data. You'll find quite a few 'non touch sensitive' synthesizer units around which are are able to receive and use aftertouch data being sent from another source.

16: This field will tell you whether or not overall 'Channel pressure' data can be transmitted or understood.

17: This tells you whether pitch bend information can be transmitted or recognized and will contain additional data about the resolution available.

18: Control change information is provided as a table showing controller numbers, their effects, and other implementation details.

19: This will tell you whether program change messages can be sent or recognized.

20: This gives details about the range of program change messages which the unit will recognize.

21: If system exclusive data can be sent or received then entries in this area of the implementation chart will show this.

22: Shows if song pointer messages can be transmitted or recognized.

23: Tells you whether song select messages can be sent or recognized.

24: If the unit can send or respond to a tune request then you'll find 'yes' entries in the appropriate columns.

25: This will tell you whether MIDI timing clock messages can be sent or recognized.

26: Shows whether start, continue, or stop commands are transmitted or recognized.

27: Will show whether local ON/OFF commands are supported.

28: If a unit transmits a message when 'all notes are off' then you'll find the details in the transmitted column. If the 'all notes off' message is understood you'll find details in the 'recognized' column.

29: Tells you whether the unit supports 'active sensing'.

30: Tells you whether the 'system reset' command is implemented.

31: Additional information relevant to the product.

Type of product: Roland Keyboard Synthesizer

Model: HS-10 — 25/4/90 Version 1.0

Function		Transmitted	Recognized	Remarks
Basic Channel	Default	1		
	Changed	1-16	1-16	memorized
Mode	Default	3		
	Messages	x	x	
	Altered	******	x	
Note Number		0-127	0-127	
	True voice	******	0-127	
Velocity	Note ON	x	o 9nH, v=1-127	*1
	Note OFF	x	o 9nH, v=0	
Aftertouch	Key	x	x	
	Channel	x	x	
Pitchbend		o	o	7 bit
Control Change	1	o	o	mod wheel
	7	o	o	volume
	64	o	o	sustain
Program Change			o	o 0-127
System Ex.		o	o	voice parameters
System Common	Song Pos	x	x	
	Song Sel	x	x	
	Tune	x	x	
System RT	Clock	x	x	
	Commands		x	x
Aux Messages	Local ON/OFF		o	o
	All Notes OFF		o	o
	Active Sens.		x	o
	Reset	x	x	

Notes *1 although the keyboard is not touch sensitive it is possible to use an EV5 footpedal to create velocity, changes.

o YES
x NO

Figure 2: The MIDI Implementation Chart for the Roland HS-10 synthesizer.

Figure 2 is the implementation chart for Roland's HS-10 synthesizer. You can see for instance that the HS-10 recognizes (but does not transmit) active sensing messages but that it transmits and recognizes both pitchbend and program change info. The aftertouch entries indicate that although no aftertouch data is transmitted the HS-10 will in fact react to incoming channel aftertouch messages.

Last Words

With the Amiga going from strength to strength, and retailers telling us that Atari ST sales are falling dramatically, the Amiga's MIDI/music time has clearly arrived. Don't be left on the sidelines during 1992 - come on in and join the band!

JARGON GUIDE

Bit Positions
It is common practice to label the eight bits of a byte (just another name for an eight bit binary number) as b7, b6, b5... b0 with bit b0 being the least significant bit, ie the one on the far right of the number. Bit 7 is therefore the most left hand bit - the one which, when set high, indicates a status byte.

DIN connector
A standard plug/socket system found in many pieces of audio equipment (cassette tape machines for instance usually have DIN connectors on the back-panel).

Drum machine
A programmable electronic unit which makes drum sounds.

Expander
Common name for a synthesizer sound module - basically these units contain the sound generating circuitry of a synthesizer without any keyboard. You use them in conjunction with a normal synthesizer to add (ie expand) to the number of sounds it can make.

Hex
Abbreviation for hexadecimal the base 16 numbering system which expresses numbers using the digits 0-9 together with letters A-F.

MIDI interface
The Amiga's serial port cannot be directly connected to MIDI equipment because although the serial port can handle the speeds required for MIDI data the physical connections and the electrical signal characteristics are incorrect. A conversion box, called a MIDI interface is needed.

Multi-timbral synth
A synthesizer capable of playing more than one voice at the same time. Multi-timbral MIDI synthesizers can usually be programmed so that different voices respond to data on different MIDI channels.

Pitch
The frequency of a musical note. Bass notes have low frequencies. Piano keyboard notes increase in frequency as you go from left to right across the keyboard.

Serial transfer
A method of sending information as a stream of bits sent one after the other.

Synth
Abbreviation for synthesizer

Voice/program memory
RAM/ROM memory used by a synthesizer for storing its voice and program setting information.

TX81Z
A programmable 8 note polyphonic sound expander module made by Yamaha.

stereo MASTER

When you are considering purchasing a sound sampler there are plenty to choose from. Why compromise? your choice should be the new full featured STEREO MASTER for the Amiga, with software that is designed from our top selling Amiga sampler AMAS and a package that gives you more extras than a M series BMW. By purchasing this state of the art product which combines a quality sampler with the expertise of over 10 years of software programming, you are purchasing a top quality product with the knowledge that it is not only compatible with existing Microdeal products but will also be with future ones.

What is Stereo Master

Stereo Master is a low cost, high quality sound sampler for the Amiga range of computers. The sampler cartridge included in this package plugs into the printer port at the rear of the computer and allows you to analyze the sounds coming in from devices such as Personal Cassette Players, Compact Disc Players etc, or change the way they sound using the Real Time Special Effects or record them. Once in the computer STEREO MASTERS unique editor will enable you to edit the sound in practically any way you can imagine. Once you have the sound sample how you want it, you may incorporate it into your own Demo's or use STEREO MASTERS own built in sample sequencer to play back the sample in sequence with other samples!

MAIN SCREEN

The Sampling Software

Every feature you would expect to find in a professional editing suite including;

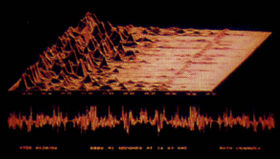
* Real time record/play ghost markers
* Cut or Delete selected sample area
* Mix sample with full or half volume
* Shrink in by 25%/50%/75% by drag or wipe
* Fade in/out with selectable degree of fade
* Filter sample with soft/medium/hard filter
* Selectable trigger volumes
* Record frequency from 3.0 to 55.9 Khz
* Full editing and control facility for left/right channels
* Playback volumes
* Decrease volume
* Increase volume
* Bounce sample
* Paste sample
* Trigger recording
* Clear left/right samples
* Loop sample

THE SPECIAL EFFECTS CONTROL PANEL

The Special Effects Software

For the first time ever you can emulate special sound effects in real time just like the sound labs can for film studios, normally the hardware to produce these effects would cost 100's of times more than this package. Features on the FX menu include;

* Built in real time special effects including Echo, Reverb, Ramp, Pitch up/down, Stereo bounce, Multi echo Chorus, Phaser, Reverse and Pitch bend.
* Fully programmable special effects so that customised effects can be recalled

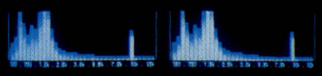


3D DISPLAY OF SAMPLE FREQUENCIES (FFT)

The Analytical Software

A whole host of pro-type analytical functions include;

* 3D display of sample frequencies (Fast fourier transform)
* 3D display also includes 2D envelope display plus sample information.
* Built in Stereo spectrum analyzer
* Stereo Oscilloscopes with trigger markers



STEREO SPECTRUM ANALYZERS

STEREO OSCILLOSCOPES

THE SEQUENCER CONTROL PANEL

The Sequencing Software

Our built in sample sequencer allows you to take up to 18 samples (memory permitting) and sequence them into your own "tronic" mixes, features on the sequencer include;

* Real time entry of sequences from keypad
* Step time entry of sequences
* 2 stereo channels for sequencing
* Storyboard style editing
* Digital sequence position display
* Fast forward/rewind controls
* Program sample to keypad
* Sequence copy function
* Loop sample
* Selectable sequence speed
* Dump/re-edit function
* Test function
* 2 octave playback
* Insert/delete sample in step time
* Stand alone demo player displays IFF picture whilst playing sequence

microdeal

© 1991 MICRODEAL U.K.
ALL RIGHTS RESERVED

Other innovative features

We know this product is years ahead of its time and these additional features justify our boast;

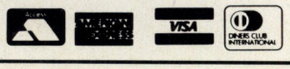
* New style stereo cartridge
* Produces stand alone executable sample files
* Fully multi tasking
* Saves in IFF/Raw/Instrument1/3/5 Octave
* Includes walkman type cable
* PAL/NTSC full screen display
* Can create workbench icons
* Save customised settings

AMIGA STEREO MASTER ORDER FORM *AMIGA*

STEREO MASTER IS £39.95 Post & Packing £1 (All prices inc. V.A.T.)

BY PHONE WITH CREDIT CARD

(0726) 68020



BY POST With cheque, Postal Order or Credit Cards.

Name... .....

Address .....

.....

.....Postcode.....

Credit Card Type.....Expiry Date.....

Number .....

Please allow 28 days for delivery

SEND TO: Microdeal PO BOX 68 St Austell Cornwall England PL25 4YB

Good screen-layout designs have made Super-Jam very easy to use

Super-Jam... *The Preview*

Every once in a while a program appears that causes a sensation. Blue Ribbon Soundwork's new Super-Jam package is just such a program. Paul Overaa takes a sneak preview in readiness for next month's full *AUI* review and even, we hope, usable demo...

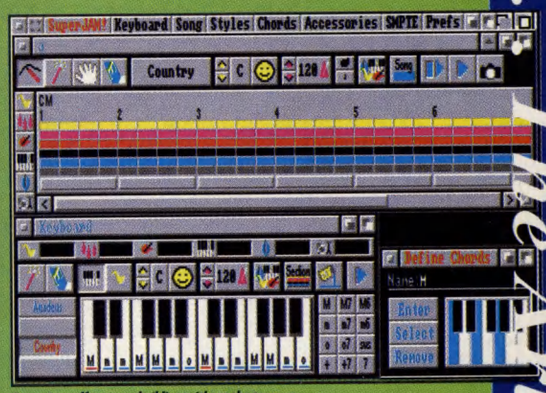
The Amiga had a slow start in the MIDI/music world but it is now clear that the quality of Amiga MIDI/music software is improving in leaps and bounds. Within the next year or so many believe that the Amiga is likely to become the UK's leading MIDI/Music machine and that means that the timing of the release of Blue Ribbon Soundwork's Super-Jam program just couldn't have been better!

To cut a long story short Super-Jam is a program that can create music. I'm not talking here about the weird (and often tuneless) computer-generated noises that some so called music generation programs produce - I mean REAL music. Given a particular style SuperJam is actually able to work out suitable instrument parts (drum patterns, bass parts, piano/keyboard backing etc.), complete with fills and variations, for a whole band and then play it using either the Amiga's internal voices or via MIDI. Super-Jam has been designed to allow up to 16 different internal instruments at once and internal sounds can even be mixed with MIDI output if you want.

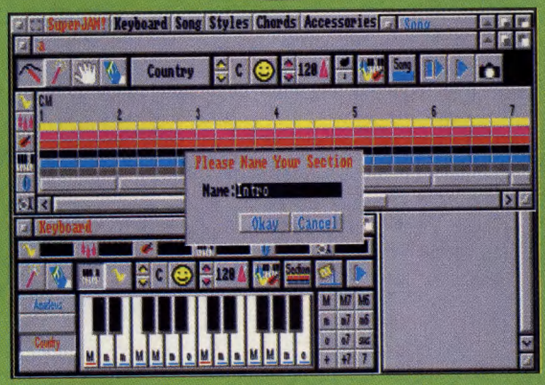
One of the best things about SuperJam is that it can be used to good effect by anyone. The program has been designed so that either the Amiga keyboard or an external MIDI keyboard (or both) can be used to enter data and the program can even turn simple one-finger Amiga-keyboard melodies into complete songs.

Super-Jam is going to turn non-musicians into musicians, poor musicians into good musicians, and because it can save time it is even going to appeal to the MIDI professional. On the Atari ST there are programs (such as Band-In-A-Box and Free-Style) which can do similar things and these are already used by a great many musicians (or would-be musicians). So why all the fuss over an equivalent Amiga program? Two reasons: To start with Super-Jam is the first such program ever to appear on the Amiga. Secondly, and more importantly, Super-Jam looks to be considerably BETTER than the existing ST offerings (I'll be telling you why next month). If you now add ARexx support, Bars & Pipes sequencer integration, and a host of other musical and technical goodies you realize why, whether you are eight or eighty years old, you must not miss the full review, plus cover disk demo, that is coming in next month's issue.

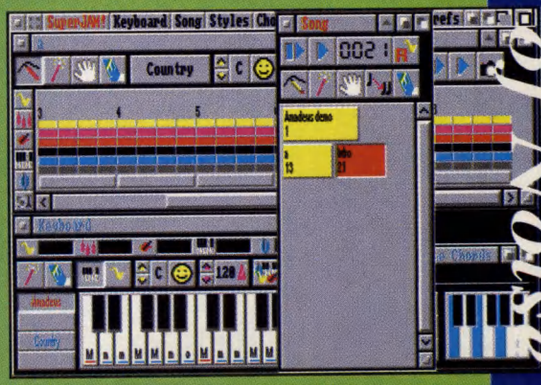
The official UK distributors of Super-Jam (which incidentally is going to retail for just £99) are Zone Distribution. If you really can't wait for details they can be reached on Tel: 081-766-6564.



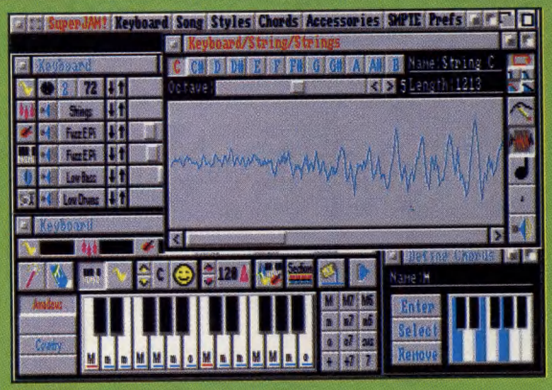
Super-jam offers song building without the tears



Making music the easy way



Super-Jam may look good but wait till you hear it



You want graphs? – you got them!

MIDI Hardware Round Up

Steve Simpson explains how the hardware works and what to look and listen for when you are considering buying into the world of MIDI.

The Amiga is a great machine for music. The custom chips can produce some wonderful sounds, exemplified by some of the creative soundtracks accompanying many of today's best games. But if you are into making serious music, then you'll probably be using one or some of the many MIDI packages which are available for the Amiga. However, to get any real music out of the Amiga you are going to need some suitably equipped MIDI hardware too.

Before you get down to choosing MIDI hardware, you would be advised first to orientate yourself. The MIDI hardware field is very broad and complex, and there are a large number of synthesisers, keyboards and other equipment available. It is worthwhile also familiarising yourself with the types of functions available on MIDI equipment. You can do this by reading the manufacturers' literature. You should certainly try to get a test-drive of MIDI equipment, preferably of your own desired MIDI setup.

In selecting MIDI hardware you should make an attempt at listing the functions and sounds you would like. Obviously you will also need to consider price. In general, the more you spend, then the greater the functions a MIDI unit will have, and so the more versatile it will be. You get what you pay for so you would be wise to spend as much as you can afford when selecting a MIDI unit.

The prices of currently available MIDI hardware cover a great range, from under £100 for basic keyboard with not too many functions, to well over £2000 for an extremely versatile sampler.

To help you orientate yourself, the following is a round up of a selection of currently available MIDI equipment and some common MIDI hardware, available from a variety of manufacturers.

Keyboards

Most MIDI systems possess a keyboard. The term keyboard is generic term for equipment with a piano style clavier, but can encompass synthesisers and digital pianos. Most cheaper keyboards do not however have a similar feel to that of a piano, some even having smaller keys than those found on a piano. For an experienced pianist this may be a source of frustration.

The keyboard can be used as the primary sound source of the MIDI network. Additionally it can be used as a master MIDI trigger or controller to output MIDI messages onto the network for input to say, an Amiga, a sequencer, or to control synthesisers or other MIDI peripheral equipment.

The simplest form of keyboard has a small number of functions and a number of preset synthesised sounds or voices and effects which have been provided by the manufacturer. Most keyboards have inbuilt speakers too.

Huge Market

The keyboard market is huge, with Casio and Yamaha dominating the cheaper end, say under £300. Above this figure, MIDI keyboards are available from these and other manufacturers, for example; Kawai, Korg, Farfisa, Elka, Orla, Gem, to name but a few. We shall divide up the overall price range into three sub-ranges: under £200 is the cheaper end of the market, £200- £800 is the middle range and over £800 is the upper price range.

The number and quality of functions and features available on a keyboard are indicated roughly in the price. Some or all of the following features may be available on a keyboard.

The cheaper end of the price range usually have 8-note polyphony, whereas some mid-range keyboards from Yamaha have up to 28-note polyphony. The Yamaha PSR-6700 is an upper price range keyboard with a staggering 40-note polyphony!

Many keyboards have a number of inbuilt rhythms. The cheaper range keyboards tend to have a few common rock rhythms, whereas the mid-range and upper range keyboards may have a more comprehensive range. The Kawai FS800 features over 100 rhythms. Some mid-range and upper range keyboards feature drum sections (for example Kawai KC10) which control the inbuilt drum sounds or an external drum machine independently of the keyboard.

The cheaper keyboards use simple on-off switches for keypress detection. Most of the more expensive keyboards feature weighted keys, touch sensitivity and after touch for expressive playing. Most mid-range and upper range keyboards possess a modulation wheel for vibrato, and pitch bend wheel for interactive change of note pitch whilst a note is sounding.

Disk Drives

Some upper price range keyboards feature sequencer facilities. Specifications vary between machines in this price bracket, but the keyboard ought to be able to store internally sequenced data for several songs. The Korg M1 can sequence up to 10 songs and a maximum of 7700 notes and 8 tracks.

Other features found on upper price

range keyboards include disk drives for storing sequenced data. They even have the facility to enable the user to edit voice data and parameters. Sound libraries are available for some keyboards (for example for the Korg 0/1W FD workstation) and can feature sounds for many different orchestral, rock and ethnic instruments. The Solton MS5 is one of the few keyboards with realistic sounds for folk instruments (e.g. mandolin) besides the usual orchestral and rock instruments.

Synthesisers

Synthesisers are provided with facilities for the musician to edit and create voice data. Many manufacturers have their own note synthesis methods. The cheapest synthesisers come in at around the upper end of the mid-range price bracket. Some synthesisers base their voices on sampled sounds, for example the Korg M1. Many synthesisers are also available in rack mounted variants without the keyboard, for example, the Korg M1REX.

Sequencers

A MIDI sequencer is hardware which behaves very much like its software counterpart. It permits the recording of MIDI data in real time or step time. It can usually record any type of MIDI data including velocity, pressure, wheels and system exclusive. Most sequencers can store several songs, thus reducing the need to load in a new song for every performance. MIDI sequence data can also usually be edited.

Sequencers are limited by the amount of available internal RAM. The Kawai Q-80 digital MIDI sequencer can store up to 26,000 notes and up to 32 tracks, and 10 songs. It is also equipped with static RAM and a disk drive for data storage and retrieval.

MIDI Mixers

These enable individual control of MIDI channels. The independent fader control of MIDI Volume on any or some of the 16 MIDI channels is possible. Control of MIDI Control Change messages such as modulation, breath control and portamento can be made in real time.

The Kawai MM-16 16 channel MIDI mixer has the above features, and a few other including MIDI merge.

MIDI Drum Machines

An extremely useful piece of MIDI equipment for rhythmic accompaniment. It can be used in a MIDI network and be controlled from a MIDI sequencer. Some drum machines have a limited number of more common rhythms inbuilt into internal rhythm generators. But for more complex rhythms a sequencer is most useful.

A drum machine has drum sounds in its internal storage. Rock and roll drum sounds are more usual, but other sounds, such as the snare drum are available on some drum machines. More versatile machines will also provide sounds for other percussion instruments - for example, cymbals and marimba. Some drum machines even provide the sounds of ethnic instruments, such as darbuka and kalimba. Drum machines are even finding application within the world of folk music, but no unit as yet offers sounds for commonly used instruments, such as the bodhran and bones!

The Alesis SR-16 drum machine is the enhanced replacement of the very successful Alesis HR-16. This drum machine offers in excess of 200 different percussion sounds.

Samplers and Sample Players

A sample is a machine to enable the digital recording of sounds or the notes produced by acoustic musical instruments. The recorded sounds may be played back via the sampler or sample player. Some samplers allow the user to change sample parameters, thus permitting a degree of sound synthesis. The sounds in TV games shows are produced this way.

In sampling sounds there are three important parameters which control the quality of the sampled sound. These parameters are the sample rate, the number of bits per sample and the sample duration. The higher the sample rate and the greater the number of bits used, then the better the final result. Modern samplers sample over 16-bits at 44.1kHz.

The amount of memory available in the sampler limits the duration of the sampling process. The greater the amount of memory, then the higher the number of samples can be taken of the sound.

The AKAI S1100 has 16-bit sampling and memory capacity of 2Mbytes, with maximum sampling time of around 15 seconds.

Patchbays

MIDI equipped instruments are usually provided with sockets for MIDI IN, MIDI OUT and MIDI THRU. Problems with connecting MIDI instruments in a network can arise. For example, connecting two MIDI instruments without MIDI THRU sockets to a single synthesiser. A MIDI patchbay will allow this MIDI network arrangement.

A MIDI patchbay is equipped with several MIDI IN and MIDI OUT sockets either on the front or rear panel. Usually there is a mechanism by which one or more MIDI OUT sockets can be associated with a MIDI IN socket.

This type of MIDI patchbay is also intelligent enough to handle several simultaneous MIDI events arriving at its MIDI IN sockets. It can detect the start and end of incoming MIDI messages and so avoid mixing and message conflicts.

On the Kawai MAV-8, any of the 4 MIDI IN ports can be assigned to any of the 8 MIDI OUT ports using front panel slider knobs, rather like those on a graphic equaliser.

Price Round Up

Keyboards and Synthesisers:	
Yamaha PSR-200	£200
Gem PX3	£307
Kawai FS800	approx. £400
Kawai KC10	£459
Orla DMK76	£920
Gem WS2 MIDI Workstation	£1049
Korg M1	£1430
Korg M1REX	£1634
Solton MS5	£1649
Yamaha PSR-6700	£1700
Korg 0/1W FD	£1795
Sequencers:	
Brother PDC100	£299
Kawai Q-80	£609
MIDI Mixers:	
Kawai MM-16	£309
MIDI Drum Machines and Rhythm Machines:	
Alesis SR-16 Drum Machine	£399
Korg PSS60 Rhythm Machine	£845
Korg S3	£919
Samplers:	
AKAI S1100	approx. £2500

Manufacturers and Distributors:

Brother, Elka, Gem, Orla, Solton distributed by:

Bluebridge Music Limited,
3-5 Fourth Avenue, Halstead,
Essex CO9 5SY
Tel: 0787-475325

CASIO Electronics Co. Ltd.
Unit 6, 1000 North Circular Road,
London NW2 7JD
Tel: 081-450-9131

KAWAI
Sun Alliance House, 8-10 Dean Park Crescent, Bournemouth, Dorset
BH1 1HL
Tel: 0202-296629

KORG UK
8-9 The Crystal Centre, Elmgrove Road, Harrow HA1 2YR
Tel: 081-427-3397

HiSoft BASIC

version 2

The BASIC of the 90s

gives you:

- New, multi-window editor with lots of features
- Extremely fast development thanks to pre-tokenising
- Many more language features inc. static arrays
- Full support for the STE, MegaSTE and TT computers
- Completely new high level GEM toolbox
- Linking with Lattice C and DevpacST assembler files
- WERCS resource construction set and debugger included
- Complete 2-volume documentation of over 700 pages

for more information on HiSoft BASIC 2 (RRP £79.95 inc.), please call HiSoft on 0525 718181, or fax us on 0525 713716 or write to us at: The Old School, Greenfield, Bedford MK45 5DE UK.

HiSoft
High Quality Software

Free gifts!

If you should have difficulty in obtaining any HiSoft product from your local dealer, you can use this order form to order directly from HiSoft. Pay by post/fax/telephone using any Mastercard, Visa, Switch or Connect card or simply send us a cheque or postal order. Prices include VAT and P&P.

HiSoft BASIC 2	£79.95	☐	Lattice C 5	£149.00 ☐
HighSpeed Pascal	£99.95	☐	HiSoft DevpacTT	£99.95 ☐
HiSoft Devpac 2	£39.95	☐	Harlekin 2	£59.95 ☐
HiSoft Devpac 3	£69.95	☐	Tempus 2 editor	£39.95 ☐
HiSoft C Interpreter	£59.95	☐	ProFlight Tornado sim	£39.95 ☐
FTL Modula-2 Developer	£99.95	☐	Your FirST BASIC book	£14.95 ☐

Name:

Address:

Please send me the software/books that I have selected, together with my free Managing with Fax book (worth £12.95) and mouse mat (worth £3.50). I wish to pay by:

☐ Cheque/Postal Order ☐ Credit card ☐ Debit card

Card No

Signature

Expiry Date

HiSoft
The Old School
Greenfield Bedford
MK45 5DE

MUSIC COM

WIN! W

£2000 Worth of Great Amig

Zone Distribution (Bless you, Andrew Bishop!) have convinced Blue Ribbon Soundworks' gorgeous Melissa Grey and and Dr T's handsome

Al Hoskiss - a little flattery goes a long way! - that *AUI* readers are the most beautiful and talented Amiga users anywhere and they all love music. You are, aren't you and you do, don't you?

So those two wonderful companies, who Zone represent in Europe, have generously contributed a load of their sensational music softare, worth over £2000, for a superduper and easy to win sing-a-long-with-us music competition.

They have given us not one, not two, not three, not four but FIVE copies of:

Dr T's KCS Three Point Five - the latest version of the program that professional musician and *AUI* music Guru Paul Overaa classed as the absolute bee's knees.

And the same magic number of Blue Ribbon Soundwork's amazing brand new SuperJam - which Paul thinks is going to take the Amiga world by storm - as you can see from his bowled over preview in this *AUI*.

And there is even more!

We also have FIVE copies of the delightful Music Mouse program which makes anyone, even a complete beginner, into a great musician. Yes, folks try it if you don't believe us! (and send back the prize if you are not completely satisfied and we'll refund your entry to the competition and the stamp!)

But, as they say on TV, seriously though, the competition demands no great musical talents, even if your name is Fred Mozart. All you have to do is become an Irving Berlin, an Ira Gershwin, a John Lennon - just imagine! Yes, become a lyric writer and give us some immortal words for a song.

MPETITION

N! WIN!

ga Music Software Prizes!!!

Don't worry about the music, we have geniuses like Paul Overaa or Andrew Bishop on hand to do the Paul McCartney bit. We'll get that written for you - unless you really want to do it yourself, which is okay too. So write some hot lyrics and our composers will do the quaver and crotchet business to make sure you receive worldwide fame.

You must write the lyrics to two verses of not more than 5 lines each. Then a chorus - a bridge - of not more than 4 lines and a final verse - it can be a repeat of one of the first two - of not more than five lines. So it goes, say, 5 - 5 - 4 - 5. That's all you have to do. Easy, eh?

The best 15 will get one of those fantastic software prizes. Please state your preference - though we don't guarantee you'll get it! Best, as always, come first and get first choice!

Oh yes... The subject of your lyric? Well, any aspect of the Amiga or anything in anyway connected with it - even you! So you've got a pretty wide choice. But somewhere the word Amiga has to appear at least once! (You're lucky we didn't make you include "Commodore" too!) By the way, Amiga means "girl friend" in Spanish, if that's any help!

Write the lyrics on a postcard or a single sheet of paper to reach us by April 30th 1992.

Send it to *AUI* Massive Music Compo

116 - 120 Goswell Road, London EC1V 7QD

Remember the Editor's decision is absolutely and totally final. He was a personal friend of Beethoven and the first one to tell him to Roll Over and the composer's Eleventh Symphony is dedicated to him and *AUI*!

So come on get started on your lyric now! Fame fortune and music software awaits you!

The Cream of

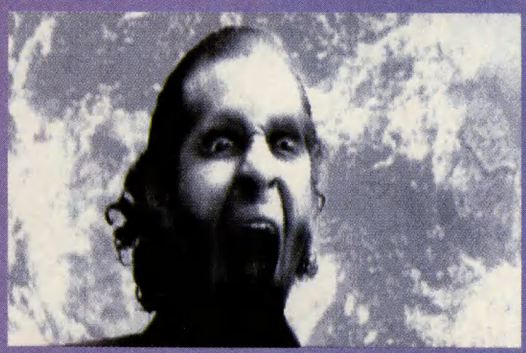
Here's proof that the Amiga is still one of the most impressive computers in the world. Gary Fenton checks out Crionics and Alcatraz's latest mind-blowing PD demos.

Hardwired

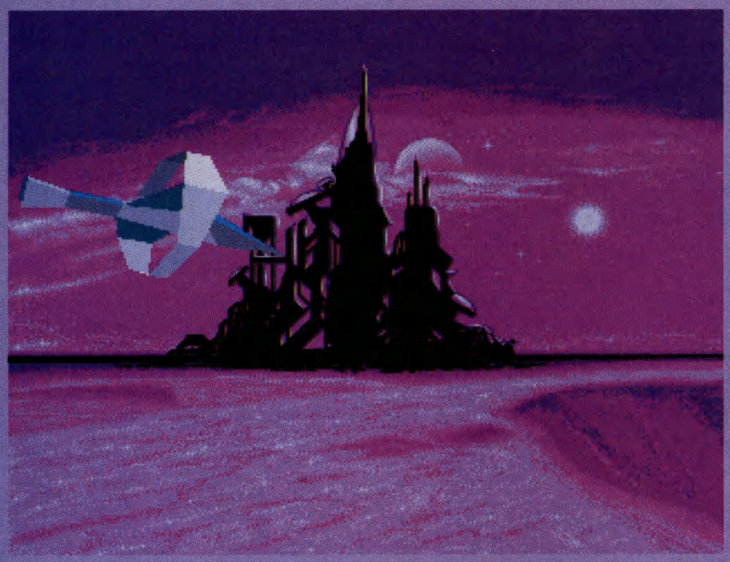
Crionics are well known for their enchanting music and clever graphics. Hardwired comes on two disks that have been crammed with the data necessary for this audio-visual extravaganza. The demo starts off with one of the best intros you are likely to see. It is animated in high resolution, monochrome, and features the work of a very talented artist.

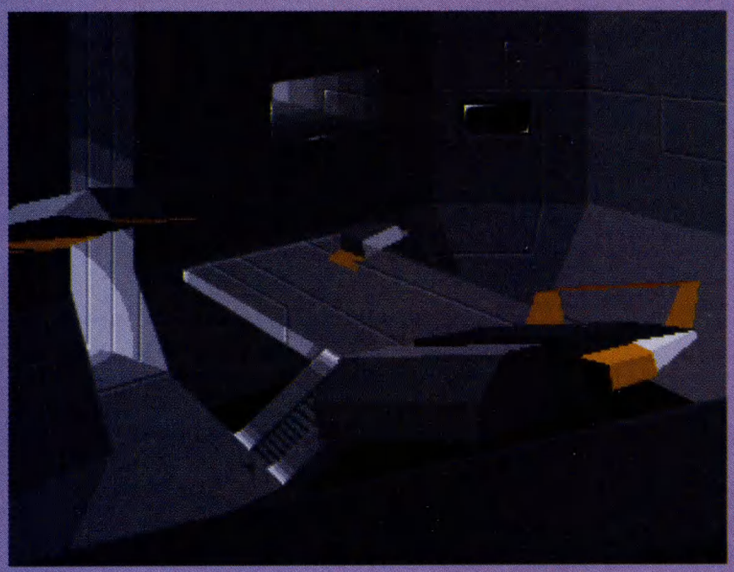
The demo goes on to show you different tricks that are constantly being improved upon and never fail to turn a PC or Mac owner green! The music is very relaxing and features an instrument that sounds very much like a snake charmer's flute. Be sure to connect up a hi-fi and play it loud!

My favourite part, and perhaps the most difficult to program, was the metamorphosis between various 3D objects. The wireframe objects span round as they changed into a different shapes before your eyes. How can a demo get any better without changing the hardware? I'm sure Crionics have already thought of that!



f the Demos





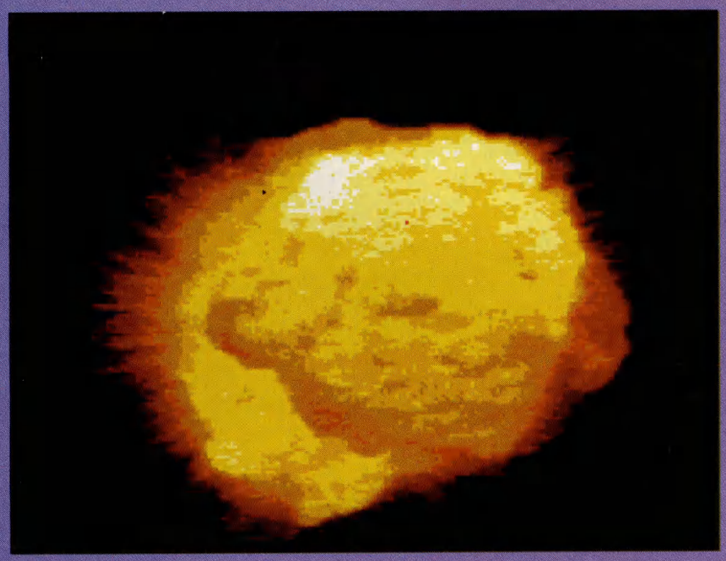
Odyssey

Alcatraz's Odyssey spans five disks and runs for a stunning 45 minutes! It is the story of an evil empire taking over the galaxy. Every story has its hero and Odyssey is no exception. The story is told with detailed illustrations, fast filled vector graphics, and a dynamic soundtrack.

The story follows our hero's quest to save his planet from the evil empire. The highlight of the 45 minute movie is the space fight between the hero and a fleet of enemy craft. The graphics are silky smooth and the explosions are terrific. The music speeds up with the action and the sound effects are played on top of the music.

If Commodore could corner the guys that did this demo and force them to produce a special CDTV version, then the world would stop and take a good long look. Could you imagine a 550 megabyte demo of this nature with a CD soundtrack and speech running for 2 hours? You could even interact and become the hero. Nice one, Alcatraz. How about a sequal?

Contact: 17 Bit Software Telephone: 0924 366982



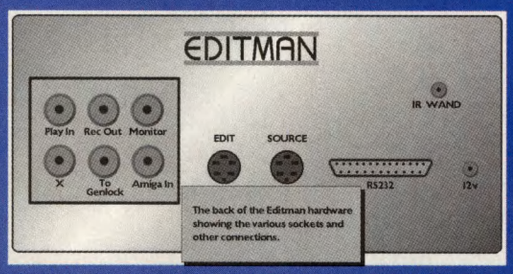
EDITMAN

As the name suggests, Editman is a personal video editing system which is centered around the Amiga. Gary Fenton investigates Syntronix's new concept in desk top video.

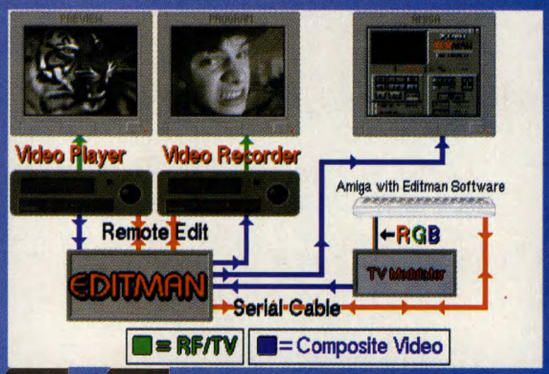
Until the mid 80's, editing video tape in the comfort of one's home was a very expensive affair. In recent years the leading companies in consumer video appliances have launched a series of editing consoles for the home market bringing prices down to more reasonable levels. Editing involves copying selected parts from one video tape to another tape in a second VCR. The only major companies to produce such editing machines at affordable prices are JVC, Sony, and Panasonic. Each manufacturer uses a different system to link the VCRs to an editing console. This incompatibility means that you can't use two different makes of VCRs to perform an automated edit.

When considering the purchase of a dedicated edit controller, be aware that it must be 100% compatible with both VCRs which means all 3 devices require an almost identical remote edit socket on the back. The biggest disadvantage of this is that when a new editing configuration or VCR becomes available, you may have to ditch your edit controller for an up-to-date model.

Syntronix have attempted to overcome these problems. The Editman package consists of an interface box, edit connection leads, an infra-red wand, and, of course, the software.



The back of the Editman hardware showing the various sockets and other connections.



Getting Started

All you need to supply is a one megabyte Amiga (any model) with a floppy disk drive, two monitors (preferably 3) or a monitor and 1 or 2 TVs, lastly 2 Panasonic or Sony video recorders, or a combination of the two makes. Any VCR you use must have a Control-L or a 5 pin edit socket, usually located on the back.

> *Because all VCRs have slight differences in mechanical operations, it is necessary to set some preferences*

Editman is probably the most compatible editing package available for the home market. As new models of VCRs are released, Editman can be upgraded by software to maintain compatibility with them. The initial setup screen on Editman gives you a selection of makes and models of Panasonic and Sony VCRs. All you have to do is click on your model. If you are using a Panasonic VCR as the source machine (the player) then simply click on the Panasonic button. There are more options for the destination machine (the recorder) because this allows you to use a VCR without an edit socket.

There are still many VCRs without a remote edit socket on the back. This would usually cause major headaches but the problem can be solved if you use the supplied IR remote features. You instruct Editman which IR signals to beam to the VCR to use the different transport controls. Effectively, you can use any VCR with a remote control handset as the recording VCR in the setup. However, any recording VCR must have a flying erase head and an insert edit function for the editing to work at all. The playing VCR must have a real time tape counter. Your VCR's manual should inform you if it has these features.

Let's Go!

Hold on! Just before you start editing last year's Christmas party you will have to tell Editman three things about your VCR. Because all VCRs have slight differences in mechanical operations, it is necessary to set some preferences. It shouldn't take longer than half an hour to obtain some favourable settings, which are saved to disk for next time you load Editman.

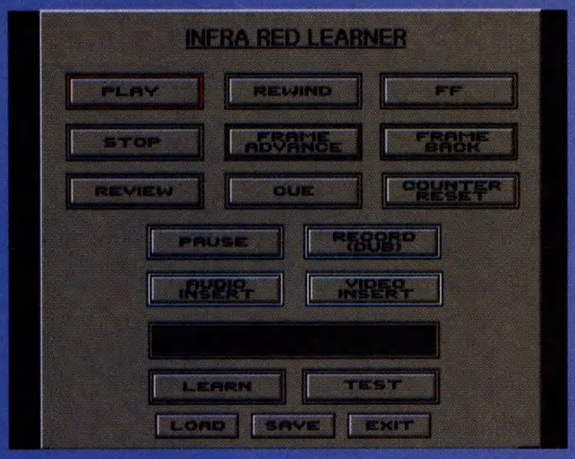
With that out of the way you can finally get into one of two editors, assemble or manual. Manual editing will generally give you better end results, but assemble editing gives you the ability to define up to 100 sequences and then leave the computer to edit them while you put your feet up.

Edit, Man!

If you have never used an edit machine before then Editman may seen a bit confusing. Don't let that put you off because it is as easy as using Workbench itself!

EDITING

The idea behind editing is to select a section of the original video tape and copy it across to a second tape. Your favourite parts from the original tape are built up into a sequence on the second tape to make a program. Editing means that you don't have to get the filming right every time you use a video camera. If you have just one camera you can make a program that gives the illusion of multiple cameras by moving the camera from one position to another. These different camera shots can be edited in any order you like that makes reasonable sense.



Take Control

The Editman system will give you a firm of control over your video program for a reasonable low price. The on screen transport controls are not repeated for both VCRs. Instead, there is one control panel and two buttons used to divert commands to one of the two VCRs. The transport controls are play, forward scan, reverse scan, pause, stop, back a frame (or field), forward a frame (or field), and variable forward and reverse. The last two variable controls move the tape slowly and by clicking on the same button again the tape will move slightly faster. You can keep clicking on it until the VCR reaches full visual scan speed.

> *There is a preview function which will perform the editing without actually recording them on the source machine.*

Assemble Edit

The assemble editor will allow you to pick out up to 100 different scenes or shots from the master tape from which you are playing. This is done by lining up the destination tape in the recording machine where the first edit is to be inserted. Then, with the recording VCR left in pause mode, the source machine is cued up to the start of the scene which is to be edited across. The VCR is paused exactly where the first scene starts. Clicking on the Edit-In button forces the computer to remember the current tape position. When happy with that, the tape is moved to the last frame in the scene that is to be edited. The VCR is paused just there and Edit-Out is clicked on so the computer now knows the start and end points on the tape. This is how the first memory is programmed.

The second edit is programmed simply by clicking on the next memory button and the display changes to show number 1, if the first memory were number 0. Repeating the edit-in and edit-out points for up to 100 memories produces a decent program (if the material were any good to start with!) There is a preview function which will perform the editing without actually recording anything on the source machine. Once the material and the sequence is satisfactory, clicking on Assemble will perform the editing for real. The rest can be left to Editman as it goes through the programmed memories and edits across exactly what has been selected. The final result is a completed program on video tape.

Of course, what good is a video without captions or any graphics at all? One of the editing tools allows you to specify an IFF picture file, on disk, to be inserted anywhere you like while editing. If you have a genlock then Editman will see that it gets superimposed on top of the video picture. A future version of Editman will load and play IFF animations as well as static pictures, which will be welcomed addition to the software. Current users of Editman would then be given the option to upgrade their software when the enhancements appear. Naturally, Editman can save all of the memories to disk so you can re-create the original program months after you edited the first one. (This means 3rd generation copies are no longer necessary!) Alternatively, changes can be made to improve an old program without having to re-edit the whole thing again from scratch.

Manual Edit

Editing manually is similar to the assembly edit except you can only edit one scene ▶

EDITMAN CONTINUED

at a time. Trick play is possible from the manual editor, giving features like double speed and slow motion. The tape transport controls are the same but there are now 3 editing buttons for video insert, audio insert and dub. Insert means that you can add an extra shot (or just the audio track) in the middle of a program for an exact length of time without picture break up. Dub performs an assemble edit on the scene you have just selected. Unlike the assemble editor, you have to press the space bar to stop the tape while Editman is performing an edit. There is no need for an edit-out point unless you are doing an insert edit.

Any Questions?

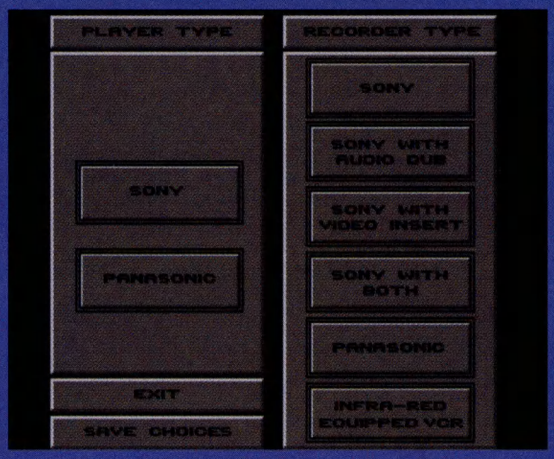
Editman's hardware only has provision for composite (normal VHS) video signals and not SVHS. There is a simple way around this; connecting the two VCRs (or camera and VCR) directly via an appropriate SVHS cable. Editman still has total control over the machines although it can no longer automatically add SVHS captions. SVHS owners will have to manually switch their genlock to achieve this, but it causes no problems. The alternative is to invest in Syntronix's SVHS version of Editman.

Home or semi-professional video fanatics probably have a favourite program for titling or graphical effects. Editman will not directly support them, but because it is fully multi-tasking, you can flip another program to the front screen to put onto tape while editing. Scala is one program that can be used happily with Editman. Programs such as the excellent Broadcast Titler 2 are totally incompatible with Editman because these programs don't multi-task. If you insist on using Broadcast Titler then you must use a second Amiga to run it on.

The question of how accurate Editman is while editing is an important factor. Editman is as accurate as your video equipment. I used a pair of Panasonic FS90 VCRs and, in most cases, they did not slip by a single frame. Over an automatic edit of 100 edits, Syntronix say that it will slip at the most by 4 frames using the FS90s. This is a very acceptable figure although the FS90 VCR costs around £800. Cheaper VCRs will suffer more from frame slippage but possibly no more than 2 frames per edit.

The imminent release of Editman, version 1.1, includes compatibility with Sony's EVS 800 camcorder. This incorporates RCTC which Editman will read for frame accurate editing every single time. As time coding becomes more common on consumer goods, Syntronix will add extra compatibility to Editman. They should see fit to add VITC to keep in line with the competition, such as the flexible Vivanco VCR-5055 edit controller.

I have tried to make it clear that what you get is as only as good as your video machines. The minimum amount of frames you can edit in one go is 8, which is a limit imposed by the accuracy of the VCRs. Also, tape transport control on your VCR is very important. If you have a jog/shuttle control on the playing VCR then you will obtain more pleasing results and trick play will run more smoothly.



Conclusion

Editman is equally as good in performance as a dedicated edit control console costing the same amount. However, the advantage that Editman has over a dedicated controller is that Editman can be upgraded as new VCRs come onto the market and new features become available. With a dedicated controller, you need 2 VCRs of the same make or compatibility as the console and it is impossible to upgrade it. This means you will end up buying a brand new controller every time you change your VCR to a new, incompatible model. Of course, Editman can save an unlimited amount of memories to disk containing your edits for different programs. Another big advantage is that Editman can drop in the Amiga's graphics automatically, even without a genlock.

Editman's future looks very bright and promising. Many professional companies are looking towards computer based editing and you, the consumer, can now purchase a comparatively cheap option just as the professional market is heading that way too (although the pros pay a lot more). As it stands, a hearty well done to Syntronix and I only hope that they will provide continuous support for Editman and upgrades at an attractive price.

Price: £599.95 inc
Contact: Syntronix
Tel: 0332 298422

Compatible VCRs

The following models are known to work hand-in-hand with Editman. If your VCR is not listed then give Syntronix a ring to find out if the latest software revision will support it.

Panasonic: FS75, FS90, FS95, FS100, FS8000.
Sony: SLC415, SLV474, SLV777, EVS800.

Video Jargon

Field - *All of the odd, or even, lines drawn on a TV in 1/50th second to make up a single static picture.*

Flying erase heads - *Almost a common addition to a VCR which prevents picture breakup before and after recording.*

Frame - *A complete TV picture made up of 2 fields. There are 25 frames for every second of video.*

IR - *Infra-Red. Low frequency light, not visible to the human eye, mainly used for scanning or communication purposes.*

Program - *A finished, usually organised, video presentation, documentary, drama, etc. A program monitor is used to view the program which gets recorded onto video tape.*

RCTC - *Rewritable Consumer Time Code for 8mm recordings giving frame accurate editing.*

Transport - *This term is used as a global word for the play, rewind, pause, etc, controls on a video machine.*

VCR - *Video Cassette Recorder.*

VITC - *Vertical Interval Time Code - The industry standard for time coding which is slowly starting to appear on consumer equipment for frame accurate editing.*

Commodore

CDTV™

INTERACTIVE MULTIMEDIA

THE WORLD's FIRST MULTIMEDIA SYSTEM FOR THE HOME

Are you bored with the TV? Do you yearn for something a little more interesting, something which stimulates the old grey matter and indulges your desire to be entertained? Enter the Commodore CDTV, the world's first advanced learning and entertainment system which plugs straight into your television. Based upon the familiar compact disc player, the CDTV offers a rich set of information and communication capabilities. It brings together pictures, words and sounds in a new format, joining them together in a fascinating world of audio visual challenge and experience.

The multimedia CDTV player combines a professional CD audio system, advanced computer technology and infra red remote control, to offer a wide variety of interactive applications. These range from games, music, gardening and personal health, to educational discs for any level. In addition, CDTV provides high quality audio reproduction for existing music CDs. CDTV is very easy to use and gives you total control over what you see and hear, offering you the chance to learn new skills and discover hidden talents

£499

INCLUDING VAT & DELIVERY - Order ref: CCD 1000

A New Age In Home Entertainment And Education

CDTV finds its place alongside the TV and Hi-Fi system in the home. It is similar in appearance to existing video and CD players and, with its infra red remote control, is just as simple to operate. But that's just the beginning. CDTV transforms television from a passive to an active medium. The vast storage capabilities of the CD make it an ideal mass information provider, capable of storing and displaying a combination of colour pictures, text, graphics, voice and stereo music of the highest quality. CDTV offers a new realm of audio and visual experience for everyone.

ENTERTAINMENT

FOR EDUCATION

EDUCATION

For young children learning to read can be an adventure! In the title Cinderella, for example, they can use the remote control unit to click on words and pictures to hear pronunciations, syllables, definitions and second language translations. And learning about the world can be fun too. The World Vista Atlas provides detailed information in words and pictures on the history, architecture, language and geography of each country. This can be cross referenced to compare with details of other countries.

REFERENCE

FOR REFERENCE

MUSIC

For the classical music buff it is possible not only to hear Beethoven's Fifth Symphony, but to see the orchestra perform, follow the score and read about the composer's life and times. The Timetable of Science and Innovation walks you through 6,250 key events in scientific history. It employs animated maps to show where every event occurred and a visual lift-off from the earth's surface. Key events are accompanied by audio presentations with graphics and sound recordings from the archives of the world's great museums. Browse quickly or examine an exhibit in detail.

FOR FUN

There is a wide range of entertainment titles available for every age-group. Sherlock Holmes, Consulting Detective, includes a video and audio tour of Victorian London. Players can choose suspects for Holmes and Watson to interrogate and can search issues of the London Times for clues. A CDTV disc's graphics capabilities take action and simulation games to a new level. Falcon makes you a pilot of an F-16 fighter and has accurate simulations of weapons systems, cockpit controls and flight characteristics allowing you to zoom like the ultimate stunt pilot with extraordinary realism.

FOR COLLEGES & BUSINESS

When Toyota, decided to open a car assembly plant in Derby, Derbyshire County Council commissioned the production of 'Japan World', a CDTV title which allows students to explore and experience the Japanese language, lifestyle and culture. It also provides a valuable insight to businessmen with information on Japanese business philosophy and negotiation protocol.

PRODUCTIVITY

FOR HOBBIES

PERIODICALS

CDTV can also enhance your personal interests. The Gardenfax Series is designed for use by novice or expert and provides hundreds of full colour illustrations, as well as information on planting and requirements for care. New Basics Cookbook provides full colour illustrations of recipes, 'talks' to you to offer tips as you cook and automatically substitutes recipes with a click of the remote control.

ARTS & LEISURE

CDTV offers a seemingly endless range of possibilities for learning, entertainment and enrichment for everyone whether in the home, the classroom or in business.

FREE TITLES!

With every CDTV from Silica, you will receive:

WELCOME - A GUIDE TO CDTV

The 'Welcome' disc replaces a weighty printed manual with colourful and exciting animation, sound, voices and text.

LEMMINGS — WORTH: £34.99

Up to 100 loveable Lemmings drop in to over 100 screens full of danger in this best selling arcade classic.

HUTCHINSON'S ENCYCLOPEDIA — WORTH: £49.99

The first British multi-media encyclopedia. It features over 1.8 million words, 700 biographies, 2000 pictures, 150 maps from ITN and 200 audio samples from the BBC sound archives.

PLUS! FREE HOLIDAY HOTEL ACCOMMODATION

Every CDTV from Silica comes with a FREE 72 page colour brochure with accommodation vouchers. These vouchers entitle 2 people to up to 16 nights FREE hotel accommodation (other options allow 4 people to stay up to 6 nights). There are also accommodation offers on hotels in London and France.

SILICA SYSTEMS OFFER YOU

- ***FREE OVERNIGHT DELIVERY:*** On all CDTV players shipped in the UK mainland.
- ***TECHNICAL SUPPORT HELPLINE:*** Team of technical experts at your service.
- ***PRICE MATCH:*** We normally match competitors on a "Same product - Same price" basis.
- ***ESTABLISHED 12 YEARS:*** Proven track record in sales and service.
- ***BUSINESS + EDUCATION + GOVERNMENT:*** Volume discounts available for large orders.
- ***SHOWROOMS:*** Demonstration and training facilities at our London & Sidcup branches.
- ***THE FULL STOCK RANGE:*** All of your requirements from one supplier.
- ***FREE CATALOGUES:*** Will be mailed to you with offers and product details.
- ***PAYMENT:*** By cash, cheque, all major credit cards, or extended payment plan.

RETURN THE COUPON FOR A FULL COLOUR CDTV CATALOGUE

MAIL ORDER HOTLINE 081-309 1111

SILICA SYSTEMS

MAIL ORDER:	1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX		**Tel: 081-309 1111**
Order Lines Open:	Mon-Sat 9.00am-6.00pm	No Late Night Opening	Fax No: 081-308 0608
LONDON SHOP:	52 Tottenham Court Road, London, W1P 0BA		**Tel: 071-580 4000**
Opening Hours:	Mon-Sat 9.30am-6.00pm	No Late Night Opening	Fax No: 071-323 4737
LONDON SHOP:	Selfridges (1st Floor), Oxford Street, London, W1A 1AB		**Tel: 071-629 1234**
Opening Hours:	Mon-Sat 9.30am-6.00pm	Late Night: Thursday until 8pm	Extension: 3914
SIDCUP SHOP:	1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX		**Tel: 081-302 8811**
Opening Hours:	Mon-Sat 9.00am-5.30pm	Late Night: Friday until 7pm	Fax No: 081-309 0017

To: Silica Systems Ltd, Dept. AUI, 0392-71, 1-4 The Mews, Hatherley Rd, Sidcup Kent, DA14 4DX

PLEASE SEND ME A CDTV CATALOGUE

Mr/Mrs/Ms: ..... Initials: ..... Surname: .....

Address: .....

.....

..... Postcode: .....

Tel (Home): ..... Tel (Work): .....

Company Name (if applicable): .....

Which computer(s), if any, do you own? .....

E&OE - Advertised prices and specifications may change - Please return the coupon for the latest information.

COMPETIT
Win this Fuj

All you have to do to win this amazing Fujitsu DL1200 wide carriage printer is answer the following multiple choice

Fujitsu have presented one of their latest printers, the DL1200, as a prize for a special *AUI* competition. Anyone would like to have this printer, particularly as it has a wide carriage to let you print out massive sheets! You can see the specifications in the box. And it looks really hot doesn't it? Pat Kelly has reviewed it in this *AUI* so you can read more about it there.

Specifications

Print Area:	A3 in landscape, A2 in portrait 136 columns continuous.
Printing Speed:	Draft - 240cps, Letter - 72cps
Print Type:	24-pin dot matrix
Resolution:	360x360 dpi
Resident Fonts:	Courier 10, Pica 10, Prestige Elite, Correspondence, Compression, and Draft
Options:	Colour is user installable, Cut Sheet Feeder
Input Buffer:	up to 24Kb, user selectable
Font cards:	15 Bitstream Designer font series including Script, Old English, Letter Gothic, and Scientific
Noise Level:	52dB
Dimensions:	195mm x 526mm x 250mm
Weight:	7kg
Price:	£499.00

ION TIME! itsu Printer

questions and complete the tie-break in no more than 12 words...

1) When was the DL1200 launched in the UK?

a) July 1990 b) September 1991 c) January 1992

2) What is the standard emulation which the Fujitsu DL range supports?

a) Postscript b) HPLJ c) Epson24

3) Why have Fujitsu made their printer set-up easier?

a) The have eliminated the need for the printer Preferences.
b) They have supplied a driver for the DL1200 on a Workbench disk.
c) The DL1200 automatically generates its own paper.

(You can find the information in the review in this *AUI*)
TIEBREAK: Dot Matrix printers are good because
(no more than 12 words)

All answers on a postcard please, to:

Fujitsu DL1200 Competition,
Amiga User International,
Panini House,
116-120 Goswell Road,
London. EC1V 7QD.

Closing date for entries is the 30th April 1991. The judges decision is final. No cash alternatives can be offered.

THE FIRST PC TO BREAK THE SOUND BARRIER.

We gave the Amstrad PC5286™ all the best features you need for serious business use and great games entertainment.

Then we gave it features which were unheard of.

16MHz SPEED – NO COMPROMISE

We built the PC5286™ around an ultra-fast 16MHz 286 processor, so you'll have all the speed you need to get through the business of the day, with enough time to play around.

A massive 1 megabyte of RAM, 40 megabyte hard drive and 1.44 megabyte 3.5″ floppy disk drive combine to make best use of this computing power – the PC5286™ is built to perform.

SUPERB VGA GRAPHICS

As you'd expect, the PC5286™ also offers state-of-the-art graphics with a 14″ high quality VGA monitor which will display up to 256 colours from a palette of over a quarter of a million.

Terrific for business applications, but all that colour is wasted on games if you've got no sound capability.

TWIN SPEAKER SOUND

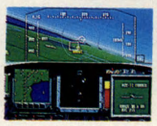
So we gave it a sound system that makes it unique.

Its fully 'Ad-Lib' compatible soundcard with twin external speakers gets you closer to the action, bringing a whole new dimension of enjoyment to your PC.

THE COMPLETE SYSTEM

The Amstrad PC5286™ Family Pack comes with everything you need for both work and play. Microsoft Works, the market-leading integrated business software package, is included together with three of today's latest and greatest games. Also supplied are a fully featured keyboard, mouse, MS DOS 3.3™ and a precision analogue joystick. To top it all, for ease of use, the PC5286™ comes with 'Counterpoint', the outstanding user-friendly graphical interface.

LINKS


F-15 STRIKE EAGLE II

PRINCE OF PERSIA

MICROSOFT WORKS

So at an incredible £799* inc VAT, the PC5286™ Family Pack has to be a sound proposition.

FOR FURTHER DETAILS RING **0277 262326** OR FILL IN THE COUPON BELOW

AMSTRAD

I like the sound of the PC5286™. Please tell me more.

Name _____

Address _____

_____

_____ Postcode _____ - AU13

Coupon information may be kept on a database. This may be passed to your Amstrad dealer, if you object please tick box ☐

Send to: Amstrad plc, PO Box 462, Brentwood, Essex CM14 4EF. Tel: (0277) 262326.

*R.R.P's correct at 1/1/92, may change without notice. All software subject to licence. Products subject to availability. Microsoft Works and MS DOS are trademarks of Microsoft Corporation. © Amstrad plc January 1992. All rights reserved.

Available from selected branches of Allders, Dixons, John Lewis, Rumbelows, Rymans, Wildings and over 3,000 registered Amstrad dealers.

WE AT OMEGA PROJECTS ARE COMMITTED TO OUR CUSTOMERS AND OFFER AN AFTER SALES SERVICE THAT IS SECOND TO NONE. WE WILL SUPPORT YOU AND YOUR PRODUCT FOR AS LONG AS YOU OWN IT. NOT JUST WHILE YOU HAVE A WARRANTY. WE HAVE OVER 10,000 SATISFIED CUSTOMERS WHO COME BACK TO US TIME & TIME AGAIN. WE ARE HERE TO HELP YOU. SO WHY NOT TRY US?

OMEGA PROJECTS (EUROPE) LTD

14 DERWENT CLOSE
CULCHETH, WARRINGTON
CHESHIRE, ENGLAND
WA3 5DY

TEL: 0925-763946

ALL PRICES INCLUDE VAT
WE TAKE ACCESS, VISA, SWITCH, CHEQUES, P.O., & WE EVEN TAKE CASH

ACCELERATORS

GVP 1500/2000 COMBO CARD

COMPLETE 68030 ACCELERATOR SYSTEM FOR THE AMIGA.

22Mhz 68030 + 68822 + 1Meg + SCSI	599.95
33Mhz 68030 + 68822 + 4Meg + SCSI	999.95
50Mhz 68030 + 68882 + 4Meg + AT	1499.95

EXPANDABLE TO 13Meg (22Mhz) OR 16Meg (33/50Mhz)

MICROBOTICS VXL-30

THE LOW COST ALTERNATIVE FOR ALL AMIGAs THIS CARD HAS PROVISION ON THE BOARD FOR A 68881/2 AND CAN TAKE UP TO 8 Meg OF RAM.

25Mhz 68030	289.95
40Mhz 68030	389.95
25Mhz 68030 + 68882	439.95
40Mhz 68030+68882	569.95

OFFICIAL DISTRIBUTORS OF CSA MEGA-MIDGET RACER

THE MEGA-MIDGET RACER IS THE MOST ESTABLISHED ACCELERATOR CARD FOR THE A500/1500/2000 THE BEAUTY OF THIS PRODUCT ABOVE ALL THE OTHERS IS THAT YOU CAN UPGRADE IT AS YOUR POCKET CAN AFFORD TO, LETTING YOU USE THOSE POWER CARDS YOURSELF AT A PRICE THAT YOU CAN AFFORD!
THIS CARD WILL ALSO ALLOW THE USE OF 512K OF STATIC RAM GIVING YOU THE OPTION TO PUT YOUR KICKSTART INTO THE SUPER FAST 32 BIT MEMORY
WE ALSO OFFER A 50% BUY BACK POLICY IF YOU UPGRADE THIS CARD LATER

25Mhz EC68030	349.95
33Mhz EC68030	449.95
25Mhz 68882	149.95
33Mhz 68882	229.95
50Mhz 68882	299.95
2Meg 32 BIT RAM	219.95
4Meg 32 BIT RAM	449.95
8Meg 32 BIT RAM	699.95
SRAM	99.95

SPECIAL INTRODUCTORY OFFER

33Mhz BOARD + 33Mhz 658882 + 512K SRAM + 4 Meg 32 BIT RAM **1179.00**

HARD DRIVIN'

A1500/2000 CARDS

GVP SERIES II no drive	179.95
GVP SERIES II + 52 Meg	299.95
GVP SERIES II + 105 Meg	449.95
GVP SERIES II + 210 Meg	699.95
GVP SERIES II + 400 Meg	999.95
NEXUS CARD no drive	189.95
NEXUS CARD + 52 Meg	389.95
NEXUS CARD + 105 Meg	549.95
MEXUS CARD + 210 Meg	749.95
NEXUS CARD + 400 Meg	999.95
ICD ADIDE 40	129.95
ICD ADIDE 44 + 40 Meg DV	399.95
ICD ADSCSI 2080	179.95
DATAFLYER 2000	89.95
SPIRIT INMATE	189.95

A500

GVP IMPACT + 52 Meg	399.95
GVP IMPACT + 105 Meg	599.95
GVP IMPACT + 210 Meg	799.95
GVP IMPACT + 400 Meg	999.95
SUPRA XP no drive	189.95
SUPRA XP + 52 Meg	349.95
SUPRA XP + 105 Meg	499.95
SUPRA XP + 210 Meg	649.95
ICD INTERNAL 40 Meg	399.95

BARE DRIVES

QUANTUM 52 Meg	209.95
QUANTUM 105 Meg	324.95
QUANTUM 210 Meg	624.95
QUANTUM 400 Meg	824.95
QUANTUM 40 Meg GO-DRIVE	299.95
SYQUEST 44 Meg removable	379.95
SYQUEST 88 Meg removable	479.95
SEAGATE 49 Meg	175.00

MEMORY & CHIPS

GVP 8 Meg inc 2 Meg	179.95
SUPRA RAM RX 500 + 1M	129.95
SUPRA RAM RX 500 + 2M	149.95
1 x 9 SIMMS per 2 Meg	69.95
4 x 9 SIMMS per 8 Meg	249.95
41256 (256 x 1)	1.00
44256 (256 x 4)	3.95
1 Meg GVP SIMM for Combo	69.95
4 Meg GVP SIMM for Combo	249.95

SOUND ENHANCER

HEAR YOUR AMIGA LIKE YOU'VE NEVER HEARD IT BEFORE OVER 700 UNITS SOLD IN FIRST 8 WEEKS OF RELEASE.
a quote from ONE of many returned registration cards. 'THE DIFFERENCE IS LIKE TAKING COTTON WOOL OUT OF YOUR EARS'

MONEY BACK SATISFACTION GUARANTEE

34.95

BUY NOW AND SAVE 5.00

100% COMPATIBLE WITH ALL SOFTWARE

SCSI TAPE STREAMERS

FROM £399.95 PRICE INCLUDES AMI-PACK SOFTWARE

AMI-BACK

THE PROFESSIONAL HARD DISK BACKUP UTILITY WITH FULL SCSI TAPE STREAMER SUPPORT PLUS UPTO 4 FLOPPY DRIVES PLUS EVENT SCHEDULER

DOS 2.0 COMPATIBLE **49.95**

AQUARIAN PUBLIC DOMAIN

APD

All orders by phone or post to 78, Merridale road, Southampton. SO2 7AD
Hot line open 9am to 6pm Monday to Saturday. All prices include VAT

ORDER HOT LINE 0703 685006

AMIGAS

A500 Plus	£380
A500 512K	£330
A1500 + S/ware	£570
A2000 + 40H/D	£1100
A3000 25MHZ	£2500
1084S 14" Screen	£239
Philips cm8833	£240

HARD DRIVES

GVP 52Meg -A500	£360
GVP 52Meg -A2000	£270
A590 20Meg	£280
105Meg Quantum	£320

>>> NEW <<<
FITTED FREE
3.5" Read / Write 128 Meg Optical Disk System £899

Postage and Packing £7:50p

CHIPS

OFFICAL UPGRADE

V2.04 Rom Kit :- Manual + Four Disks	£89
V1.3 Rom	£27
Hi Rez Denise	£46
Fatter Angus	£46
Super Angus	£60

ADD - ONS

MegAChip A500/2000	£198
MultiStart Rom switch From the KEYBOARD	£40
BattDisk	£160
Insider II A1000	£169
Rom board A1000	£59
SecureKey A2000/3000	£78
Roclite Disk Drive	£56

CHIPS Postage £2:00p

DISKS

UNBRANDED inc Labels
GUARANTEED 100%

3.5"	DS/DD	38p each
3.5"	DS/HD	68p each
5.25"	DS/DD	28p each

128Mb 3.5" Optical Media Cartridge £35

STORAGE

3.5" CAP 80	£6:00p
3.5" POSSO	£17:00p
3.5" BANX	£8:50p
3.5" Holds 10 Disks	95p
NEW !! 3.5" 12 CAP	
LIBARY BOX	£12:00p

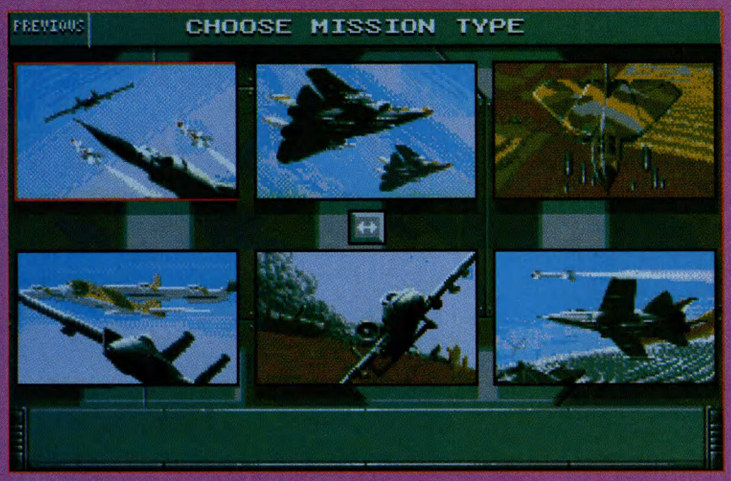
Holds disks and record cards individualy. Stackable, Execelent for those originals or personal disks.

Postage and Packing £3:50p

BIRDS OF PREY

Arganaut/ Electronic Arts

£34.99



Birds Of Prey has been in development for about four years, and has been one of the most eagerly awaited Amiga games. Originally scheduled for a December 1989 release, it has been subjected to numerous delays. The main reason being that extra features kept on being added, and the game generally having been improved. It is reputed to have cost some £250,000 to produce!

There are forty types of aircraft you can fly, 27 allied, and 13 Soviet. These include all the popular modern day fighters from the F-15 Eagle to the British Tornado. If bombing missions are your forte, the B-2 and the F-117A stealth aircraft are both here as well as the enormous, now veteran B-52. If you fancy something a little different you can try your hands at a Harrier Jump Jet with vertical take off, or even attempt flying a Boeing 747. Each aircraft behaves differently, for example a Hercules responds slowly to turns, and is propeller driven, so sounds different.

The game is played as an ongoing war campaign of East verses West, and you can choose which side you want to be. Regardless of which side you are on, you are offered the choice of twelve types of mission, these include Air Interception, Bomber Escort, Border Or Sea Patrol, Reconnaissance, and both Troop and Supply Drops. There is even an option to test pilot the experimental X-15, this is taken up in the sky under the wing of a B-52 to a height of about 40,000 ft, where it is released. You then have 85 seconds of fuel and the aim is fly it as fast and as high as you can. Speeds can reach up to Mach 6.69, and heights up to 354,200 ft, but you still have to try to land from that height with no fuel.

Once you have chosen your mission, you must decide which side you want to be. Each side has a choice of three bases and two aircraft carriers. When one is chosen it becomes your home base. If you choose a carrier as your home base it will limit the types of aircraft you can fly.

Next you have to choose an aircraft. The choice really depends on which mission you took, but you wouldn't pick a Boeing 747 to intercept

DECISION 91%

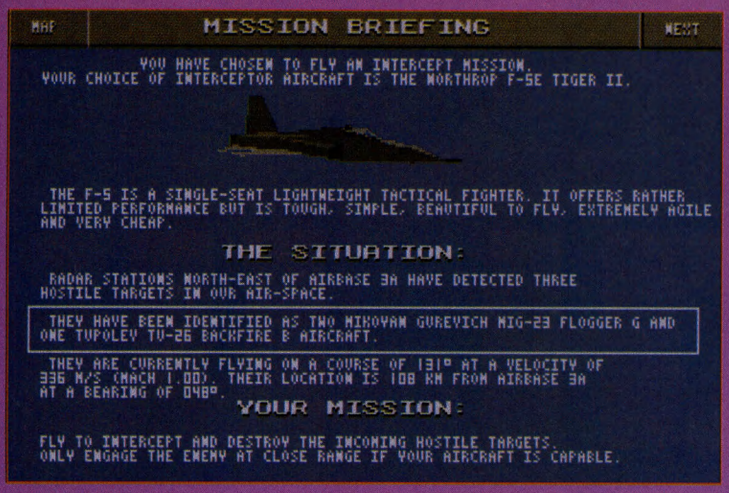
With 40 aircraft to fly, this is an essential buy for all flight simm addicts.

Graphics: 68%
Not amazingly fast, but very highly detailed.

Sound: 40%
What sound there is has been very well used.

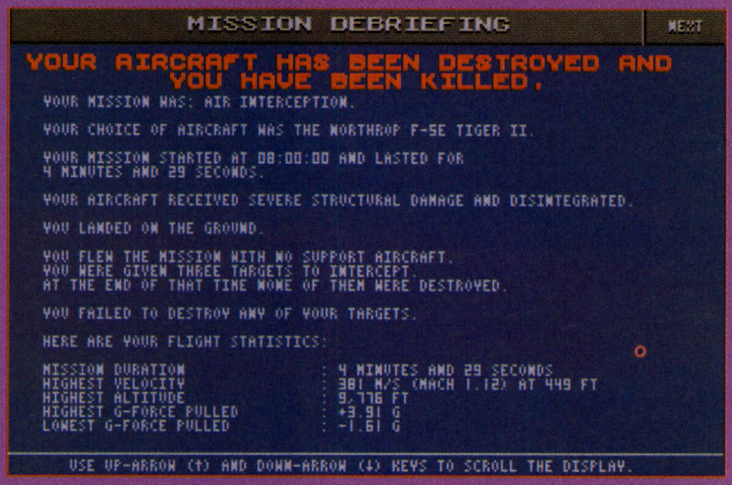
Gameplay: 80%
Difficult to play at first because of the slow frame rate, but soon got used to.

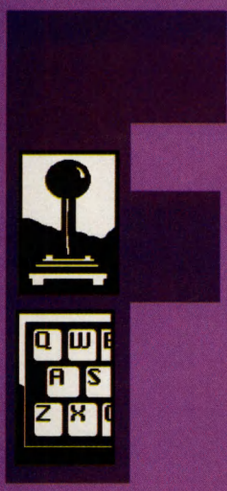
Difficulty: 8/10



two Mig 21's, although you could if you wanted to! A mission briefing follows, and then you have to decide which weapons you wish to have. These include various infra-red and radar homing air to air, and air to ground missiles, as well as free fall and laser guided bombs.

The mission you choose, whether you complete it or fail, will effect the ongoing war effort. As you are about to bomb an aircraft shelter, an enemy might just be doing the same to one of yours. If you accidentally destroy anything on your own side, you are then considered one of the enemy. However, you are still able to continue the game from that point, as one of the opposing aircraft.





F

The game monitors both the keyboard, mouse, and joystick for inputs so you can switch controls when ever you choose. Every key on the keyboard has a function, so you will need the keyboard overlay with you at all times.

I was expecting Birds Of Prey to be as fast as Starglider II, but this was not so. In fact, it was one of the slowest flight simulators I have seen. This was not such a bad thing as I soon began to appreciate that what is lost in speed is made up in graphic detail, which can be altered to increase the speed slightly. Of course, the faster your processor the faster the game should run. The speed on a normal Amiga takes some getting used to. If you are travelling fast and you bank right, about five frames later you will be upside down, so a gentle touch and plenty of practice is needed.

The use of sound is excellent. When the engines are off you can hear the whistle of the wind outside, and when they are on there is a nice deep rumble which varies from aircraft to aircraft. As with many flight sims, you can view the aircraft from almost any angle imaginable, and there is also a key that allows you to see from the missiles point of view.

PREY

Enjoy Choosing From Our Extensive Libraries And Take Advantage Of Our Professional Service

Birmingham's No.1 International Shareware and Public Domain Library

ORDER TODAY, 15,000+ Programs... Try this for a selection

PC

Application Packages

AP01 Address Book v1.0 for Clubs, Home Business etc
AP02 Audio/Visual Media Tracker
AP03 Customer Database
AP04 Very Good Lead/Prospect/Sales Tracker
AP05 Library System
AP06 Golf Companion v1.0
AP07 Jeepers Bibliography Database Management (3)
AP08 Lotto Challenger *NEW!*
AP09 Market Master (Wicked Stock Market Games)
AP10 Universal Estimator v2.0 (Self Documented) *NEW!*

Accounting & Business

Freeway Cashbook v4.5 Updated! (3)
Freeway Ledgermaster Updated (4)
AC19 Freeway Payroll v8.6 (3)
AC21 Page Financial Controller v1.11 (2)
AC28 Noyes Financial Package (2)
AC30 Cheque It Out v1.1 (1)
AC31 Cheque Plus (2)
AC32 Business Letters (1)
AC35 Formgen v4.1a
AC37 EZ-Forms (1)
AC40 Fast Invoice Writer (1)
AC42 Investment Ledger v6.0 (1)
AC45 SISCPlus (Sales, Invoicing, Stock) (1)
AC49 Mr Bill
AC67 Easy Projects v4.02 (1)
AC55 Home Finance Manager (1)
AC59 Ultimate Sales Manager v4.00 (2)
AC60 Corporate Financial Analyst (2)
AC61 Salesman v2.1 (1)
AC62 Video Management SYS v3.5 (2)
AC64 Cassy (1)
AC65 Dlite v1.0 (1)
AC66 Prodev Quote v4.01 (1)
AC67 Market Finder & Minder (1)
AC69 Marketeer (2)
AC70 Case Accounting (2)
AC71 Automotive Accounts v1.4 (1)
AC72 Simple Book Keeping (1)
AC73 Capital Gainz (Stock Market) (2)
AC74 Easy Quote (1)
AC75 Cashtracker v6.51 (1)
AC76 Micro Accounting System v1.2 (1)
AC77 PC Accounting (1)
AC78 Stock Market Analysis & Tracking (1)
Ac79 The Stock Trader (3)
AC80 Turbo Financial Assistant v1.12 (1)
AC81 Total Investor v2.0 (1)
AC82 AlphaQUOTE v2.0 - Estimating PGM (1)
AC83 PC-Chart Stock Market PGM (2)
AC84 Maintenance & Service Call Tracking System (4)
AC85 PC Mechanic Maintenance System (1)
AC86 PC Project Manager (1)
AC87 PC Sell v1.0 Point of Sale System for Retailers! (1)
AC88 Personal Client Manager
AC89 Purchase Order System v3.0 (2)
AC90 Price Search v2.1 for the Sales Manager (2)
AC91 Surveysoft V3.0 (for surveyors) (1)
AC92 Telesale Program v4.0 (1)

Utilities

UT25 Professional Masterkey v3.20 (1)
UT50 PKZip & PKMenu v1.04 (1)
UT20 4 Dos v3.03
UT18 Automenu v4.7 (1)
UT16 Powermenu v5.3 (1)
UT17 Menu Direct Gold v3.0 (2)
UT19 Hard Disc Menu IV v4.00 (1)
UT21 Menu Commando II (1)
UT20 Treeview (1)
UT36 Powerbatch (1)
UT39 Turbo Copy v2.01 (1)
UT38 Executive Director v2.10 (1)
UT42 Virus Scanner (1)
UT43 Anti Virus Kit (2)
UT44 Back & Forth v1.71 (1)
UT49 Dos Toolbox & Marx Menu v2.27 (2)
UT50 Dos Help
UT55 Ultra Utilities v4.00 (1)
UT59 Flexibak Plus (1)
UT60 PKWares Utility Package (2) Good deal!
UT61 400K Disk Formats 360K to 400K (1)
UT62 800K Disk Formats 800K to 1.2Mb drive (1)
UT63 Easy Format Package v3.10 (2)
UT64 EZ-Menu v3.36 (1)
UT65 Fast Menu Plus v5.1 (2)
UT66 GMenu v3.0 (1) Good
UT67 Taskmaster v4.72 Very good (1)
UT68 Alt v1.24 (1)
UT69 VMix 386 v2.5 (1)
UT70 DOS Management (80 PGMS) (2)
UT71 DOS Directory Manager (100 PGMS) (5)
UT72 PC System Check (2) Not bad!
UT73 Overview Too v2.21 (hard disk manager) (1)
UT74 Flu Shot + (1)
UT75 Dalabeller (1)
UT76 Christmas Utility Package (200 PGMS) (12)
UT77 PC World Utilities (1)
UT78 Batch Utilities Package (100 PGMS) (4)
UT79 Easy Access Menu System
UT80 Shareware Menu System
UT81 GMenu for Hard Disk
UT82 Mega Menus UK Author
UT83 Label Maker Pack (2)
UT84 Banners – Creates Banners on Computer
UT85 Roladex of Names & Phone Numbers

Database

DB04 Wampum v4.00 (2) UK Version
DB06 PC File v5.01 (3)
DB07 Zephyr Foxpro Clone v2.0 (2)
DB08 Catalist v3.27 (4) List Manager
DB09 SR-Info v3.41 (2)
DB10 File Express v5.00 (4)
DB11 Softbook
DB12 Information Please v2.07 (1)
DB13 Datamanager (1) Good!
DB14 Freebase v1.5 (1)
DB15 Record Card Database (1)
DB16 Ed's Database for the Novice User (1)
DB17 Freefile Simple to use Database (1)
DB18 UK Postcode Databse. A must for companies!! (1)
DB19 DBSteel Database (powerful) (3)
DB20 Database PGM for Churches (1)

Wordprocessing

WP08 Galaxy-Lite v1.7 (1)
WP09 PC Outline
WP10 PC Write Lite v1.03 (2)
WP11 PC Type+ v4.0 (4)
WP12 Black Magic v1.51 (3)
WP13 Mindreader v2.0 (1)
WP14 Rubicon Publisher v2.2c (2)
WP22 Hypershell v4.0 (3)
WP26 New York Word (1)
WP29 Jorj Dictionary (1)
WP31 Thesaur Plus (1)
WP49 Fontastic (1)
WP55 European Multi Lingiual WP (3)
WP59 HyperPAD v2.2 (5)
WP75 Word Fugue v2.00c (2)
WP77 Bradford (1)
WP90 WP for Kids (1)
WP91 CV Master
WP92 Ianed v2.1 (1) Nice
WP93 Brown Bags v2.0 (1)
WP94 Freeword v1.0 (1)
WP95 PEdit v3.0 (V. Good) (1)
WP96 QEdit v2.1A (1)
WP97 Ravitz Editor v1.0 (1)
WP98 Sharespell Checker (very powerful) v2.0 (1)
WP99 The Report Writer v1.10 (Brill) (1)
WP80 Micro EMacs Package (3) Good
WP81 VDE v1.6 V. Good
WP82 Anyword v1.06 (1)
WP83 Alans WP & Spreadsheet & Text Editor (2)
WP84 Blackbeard text Editor (1)
WP85 Boxer Text Editing v3.03 (1) Brill!!!
WP86 Wysiwyg Word Processor Very Good (1)
WP87 Anyword v1.06
WP88 PC Hypertext
WP89 Maxi Read A Writing Analyzer

Educational

ED02 PC Tutor (1)
ED03 Tutor Dos (4)
ED04 GCSE Physics/Computer Science/ Mathematics/Chemistry (3)
ED05 German/Spanish/Italian/Japanese & French Tutor (4)
ED06 IQ Builder (1)
ED07 World Atlas (1)
ED08 Kids Graphic Prog. (1)
ED09 Childrens Ed. Games (4-8 Yr Olds) (2)
ED10 Computer Tutor (1)
ED11 Amy's First Primer v2.2 (1) For Kids
ED12 Spelling Tutor (1)
ED13 Play 'N' Learn (1)
ED14 Spanish for Travellers (1)
ED15 Funnels & Buckets v2.00 (1)
ED20 Algebra Tutorial (2)
ED21 PC Fast Type v3.01 Typing Tutor (1)
ED22 Quiz Master (1)
ED23 Trigonometry (1)
ED24 Tutorial Writer v2.1 (1)
ED25 Chemical Ed. Game for secondary students (1)
ED26 Hebrew Tutor (1)
ED27 Lotus 1-2-3 Tutor (1)
ED28 Games for the Very Young (18mnths – 4 yrs)
ED29 Good Math Educ. Game (For 3-6 yrs)
ED30 The Co-ordinator v1.03 Learn How to Type
ED31 Wicked Educational Hangman Game
ED32 Letterfall – Learn the Alphabet
ED33 Numberscope Learn Kids Numbers

Programming & Languages

PL06 A86 & D86 (1)
PL09 C Tutorial (1)
PL11 Pascal (1)
PL13 Turbo C Tutor (2)
PL15 Modula 2 Compiler (3) v2.0
PL17 Power Basic Support ST (5)
PL19 Chasm (1)
PL23 Turbo C14 Tutor (2)
PL24 Help PC v2.1 (2)
PL25 The Programmers Productivity Pack v2.5 (2) V. Good
PL26 Cobol v6.0 (1)
PL27 Jorf v1.4 (2) Brill
PL28 Snobol4 Compiler (1)
PL29 Superpascal v1.0 (1)
PL30 Turbo Pascal v3.0 (1)
PL31 B/Window C/Window (1)
PL32 CP/M Emulator (1)
PL33 Ladybug Logo (1)
PL34 Workbase (1)
PL35 Basic Programmers Kit (4)
PL36 Programming Assembler Kit (6)

Spreadsheets

SS09 As Easy As v4.0s (1)
SS13 Qubecalc v3.01 (2)
SS14 PC-Calc+ v2.0 (3)
SS16 Instacalc v3.0 (1)
SS18 Pivot v2.0 (1)
SS19 Turbo Calc v9.01 (1)
SS20 Alite v1.0b (1)
SS21 Express Calc v4.10 (2)
SS23 Grab Plus v6.0 (2)
SS25 Free Calc v2.0 (1)
SS26 Lotus 123 Utilities (1)
SS30 Alite v1.10 (1)
SS32 EZ Spreadsheet v1.1 (1)
SS33 Proqube Lite v1.0 (1) Very powerful
SS34 VP Spreadsheet Planner (1)
SS35 Symphony Worksheets 1-9 (2)

Graphics & Art

GP03 Dancad 3D v2.00 (2)
GP04 Optiks (1)
GP05 Tsquare (4)
GP06 VGA Paint (1)
GP07 Clip Art Pack (6)
GP08 Droege (2)
GP09 PC-Key Draw (3)
GP10 PC Draft (1)

FREE PROGRAMS OF YOUR CHOICE
When you order your Disks from us

e.g.
Buy 3 Disks get 2 FREE

Disks Ordered	3	9	15	21
We give you FREE	2	3	4	7

B.I.S. will tailor-make a Shareware package to suit your pocket

Just £1.95 per Disk (any size)

Order more than 3 + they'll be posted FREE
3 or less – add £1.50 p&p

15% OFF for members

MEMBERSHIP FEE
£11.00

Qualify for 24 free programs a year, 6 per quarter.
Why not phone us up to find out about our 5 star membership scheme. Tel: 021 558 3352.

15% OFF for members

ATTENTION
SMALL-MEDIUM SIZED BUSINESS OWNERS

Why not contact our librarians & programmers to help tailor make your software needs to run your business as smooth as possible without spending a fortune. Essential business packages for Accountancy, Solicitors, Surveyors, All professional bodies and all types of retail and wholesale outlets.

We are also in the business of helping schools, colleges and councils, so if you want advice, you know who to contact.

If your firm or institution is within a 15 mile radius of Birmingham we will send out our professional staff to help your needs.

It's FREE! It's FREE!
Ring now for our latest Disk catalogue
It's FREE!

Premier Delivery/Despatch Service

Providing we receive your order before 2pm we can guarantee:

Same Day Delivery – People living within 15 mile radius of Birmingham
(Minimum order 6 Disks – £2.95)

Same Day – People living outside Birmingham

GP11 Desk Top Paint (2)
GP12 Fractal Designer v3.08 (1)
GP20 ATK Tool Set v1.02. Brilliant (2)
GP21 The Draftsman v1.0 (1)
GP22 Acrospin v2 CAD Powerful package (1)
GP23 Electronic Circuit CAD PGM 1-3 (1)
GP24 Easy Case v1.6 Engineering PGM (1)
GP25 BBag EZ Presentation Graphics Pack 1-3 (1)
GP26 PC Draft II (2)
GP27 Ocrshare v2.2 V. Good (1)
GP28 Northcad 3D v4.2 (1)
GP29 VGA Computer Assisted Design v1.6. Nice (2)
GP30 Autocad Editor (2)
GP31 Autocad Starter Pack (5) Good deal!

Windows

WI23 Icon Manager
WI24 Metz Windows Utilities
WI25 Almanac for Windows
WI29 Winedit v1.1 Test Editor
WI30 Winpost v3.0b
WI33 85 Games for Windows
WI34 Paintshop for Win v2.02
WI35 Command Post v7.0s
WI36 Wincheck v2.2a
W140 Windows Desktop Demo PGM (1)
W141 Windows Christmas Utilities Package (100 PGMS) (8)
W142 Windows Modern Collection (75 PGMS) (6)
W143 Atlus v1.0 (1)
W144 Active Life V1.5 for Business People! Excellent! (1)
W145 Windows Business Package (15 PGMS) (3)
W146 Orion SQL (Database for Windows) (1)
W147 Power BBS v1.50 Powerful! (2)
W148 Run PKZip from Windows (1)
W149 100 Games for Windows (7)
W150 Fractint v3.0 for Windows (1)
W151 Music Collection for Windows (3)

Communication

CM10 Odyssey v1.42 (1)
CM11 PC Comm+ UK Version (1)
CM12 Telix v3.15c (3)
CM13 Wildcat BBS System (2)
CM15 Fido (1)
CM16 PC Ham v5.32 (1)
CM17 Auto Sig Compserve v6.3a
CM18 GT Power v16.00 (4)
CM20 Backmail (1)
CM21 BCom121 Updated V. Good (1)
CM22 Boyan Comm. (2) Brill!
CM23 Com and v2.5 (3) Excellent!
CM24 Eazlink UK v.3.4 with Bill Calculator (2)
CM25 Easycomm v1.2 for novice (1)
CM26 Pibterm v4.0 (6) for the Prof.
CM27 QModem SST v4.20 (5)
CM28 Telemate v2.11 (3)

Special Interests (Hobbies)

SI42 Crossword Creator v4.3 (1)
SI43 Crossword Solver (1)
SI44 Crystal Ball v3.0 (1)
SI45 Managing your Food v3.61 (1)
SI46 Astrology/Horoscopes (1)
SI47 Football Forecaster (1)
SI48 Handwriting Analyst (1)
SI49 Diet Aid (2)
SI50 Bible (7)
SI51 Family Ties v1.15 (1)
SI52 HAM Radio (4)
SI53 Pianoman (1)
SI54 Stock Options & Trader (1)
SI55 Wedding Organiser (1)
SI56 Weight Control (1)
S160 PC Astral Windows v6.0 (1)
S161 Harmless Joke PGM (funny) (1)
S162 Golf Card Maker (1)
S163 Poem Creator (1) 2 PGMS!
S164 The Mystical Tarot Cards (1)
S165 Weather Forecaster (1)
S166 Brothers Keepers v4.5 (3) Entertaining!
S167 Dograce v1.0 Betting on Dog Races (1)
S168 Club Membership UK version (1)
S169 PC Contracts Manager. Good! (2)
S170 Gardeners Assistant v1.0 (1)
S171 Incontext v1.0 (2) Organise your work. Very good
S172 Indexing Library (1)
SD173 Simple Cataloguing System (1)
S174 Home Insurance Calc. (1)
S175 Constructive Cost Model for Proj. Planning (1)
S176 Creative Cuisine. Brilliant for Christmas! (1)
S177 Meal Master v6.07 (200 recipies) (1)
S178 Freeware KJV Bible Text & Search PGM (6)

Desk Top Tools

DT01 Early Bird v1.0e (1)
DT02 Personal Calendar v2.1 (1)
DT03 PC Desksteam v2.01 (1)
DT04 The Ultimate Diary (1)
DT05 Alt v1.16s (1)
DT06 First Publisher (1)
DT07 Demo of Atech's Publishers Powerpak (1)
DT08 Flowdraw v2.04 (Flowchart drawing PGM) (1)
DT09 Jet Setter DTP (2)
DT10 Fonts Package (25 PGMS) on (3) Very good deal!

Music

MS25 Sequencer Plus (2)
MS26 Music Maestro (1)
MS27 Melody Master v1.6 (1)
MS28 Musicians Toolbox (1)
MS30 Soundblaster v4.0 (1)
MS31 Drum Master v1.0 !Connect your PC into drum machine (1)
MS32 Juke Box v1.5 (1)
MS33 Trakblaster v2.0 (1)

Science & Engineering

SE02 Bigcalc (1)
SE03 Diff (1)
SE04 Aciran (1)
SE05 RMS Survey Utilities (1)
SE06 PC Model (1)
SE07 Kinetics (1)
SE09 Geocalc Coordinate Geometry v1.21 (1)
SE10 Computer Aided Mathemetics PGM v1.02 (1)
SE11 Derive v1.59 (1)
SE12 Electronics Calculations PGM (1)
SE13 Collection of Formulas (1)
SE14 Graph (Brilliant) (1)
SE15 Scientific Calculator (1)
SE16 Maths Package II v3.0 (1)
SE17 Multi Statistics Package (2)
SE18 PC Sstat v2.2 (1)
SE19 Science & Engineering Package (60 PGMS) (8)
SE20 Vichem. Very good chemistry PGM (1)

Games

GM02 Arcade Games (4)
GM03 Black Jack v2.20d (1)
GM04 Ford Simulator II (1)
GM05 PC Chess (1)
GM06 PC Monopoly UK Version (1)
GM07 Dracula in London (1)
GM08 Captain Comic v3.00 (1)
GM09 Jacaranda Jim Adventure v2.23 (1)
GM10 Pharoh's Tomb (1)
GM11 The Soccer Game (1)
GM12 PC Golf (1)
GM13 Sex Monopoly (1)
GM14 Block Out (1)
GM15 Joystick Games (1)
GM16 Shooting Gallery (1)
GM17 Scramble v1.00 (1)
GM18 VGA Concentration (1)
GM19 Power Chess v4.46 (1)
GM20 Goal v1.0 (1)
GM21 Kung Fu Louis (3)
GM22 Business Strategist (1)
GM30 688 Sub Attack (1)
GM31 Castle Adventure (1)
GM32 Dark Ages Adventure (EGA) v1.0 (1)
GM33 Political Scandal (2) Very good
GM34 PC Hack v3.6 (1)
GM35 Hugo II Whoodunnit? (2) Amusing Adv. game
GM36 Larn v12.2 Dungeon Adv. game (1)
GM37 Moraff's World VGA Brill (1)
GM38 Net Hack v3.0J (2) Awesome!
GM39 20 Board Games (Christmas pack) (5)
GM40 Bass Tour Fishing Game v4.0
GM41 Computer Football v2.3 EGA req (1)
GM12 Centre Fielder Football Game (1)
GM43 Storybook for Kids (1)
GM44 Dr Ruths Computer Game of Good Sex! (1)
GM45 Football Manager v1.0 (1)
GM46 PC Tennis (1)
GM47 Questmaster v2.1 (make your own adventures!)
GM18 11 Shareware Games (3)
GM49 "Name That Tune" (1) Good
GM50 Dice & Card Games Package (10 games) (4)
GM50 Beyond the Titanic Adventure
GM51 Duke Nukem
GM52 Test your IQ (Funny)
GM53 Commander Keen
GM54 On Line Gladiatorial (Very Good)
GM55 Space Conquest Brill!
GM56 Blockbuster Game
GM57 EGA Baseball
GM58 Casino Games
GM59 PC Pontoon v3.2
GM60 Set Card Games (3)
GM61 High Rollers Dice Game Fun for Kids
GM62 30,000 Word Dictionary & Anagram Finder
GM63 Connect 4
GM64 Jigsaw Puzzle Game

AND MANY MORE IN STOCK

ATTENTION AUTHORS

Our library is looking for potential authors who show determination to succeed –financial backing provided

1000's of Top Amiga Programs available – Ring us NOW

021-558 3352 for FREE catalogue

Service and Membership (10.00am-10.00pm) (2 Lines)

The library will be open from 10.00am to 10.00pm so don't worry about leaving your message on the answering machine since you have all day to place orders.

If you don't see the PD or Shareware program you require, give us a call.

021-558 8958

Fax Line for Local & International Orders

Credit Card Hotline: 021 55 6335 (5 Lines)

All our software is now available from Dataflow Systems, West Bromich. Tel: 021 580 0880

Birmingham International Shareware & Public Domain

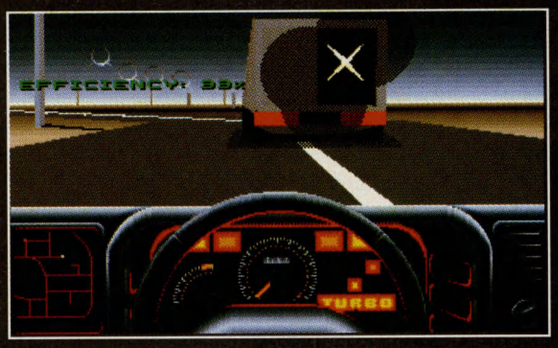
Freephone Credit Card Hotline (24hrs), Freepost also available for sending your orders.

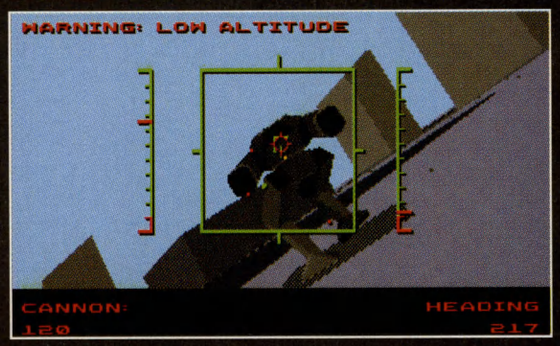
FREEPOST, 31 Bertram Road, Smethwick, Warley, West Midlands B67 7NY

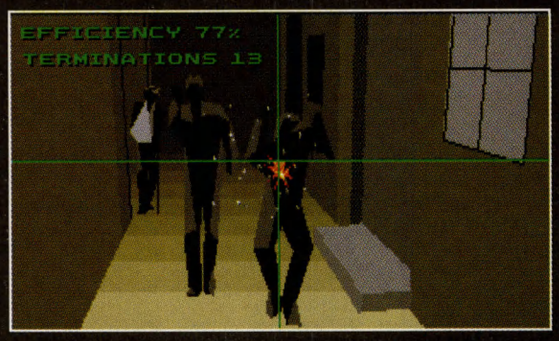
Shareware and Public Domain are FREE, so we believe in offering a service that no other library can match. Orders paid by cheque will take 3 working days to clear

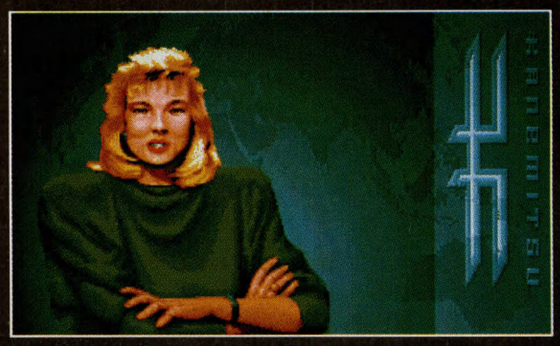
ROBOCOP 3

Ocean £24.95









DECISION

85%

A worthy Robocop game which will probably do justice to the film.

Graphics: 90%

Impressive 3D graphics with good multi camera shots and smoothly animated driving scenes.

Sound: 79%

Not at all bad, but lacks samples of Robocop's voice which were expected of the game. The music is atmospheric and appropriate.

Gameplay: 86%

Very playable with easy controls which respond quickly.

Difficulty: 8/10

Car chasing is easy but shootouts are tricky to complete.

You have forty seconds to comply! Yes, Robocop is back once again, but this time in 3D. Ocean have released Robocop 3 well before the film hits the UK, or anywhere else in the world for that matter.

There are two different ways to play Robocop 3, either the arcade version or the movie version. Both versions are based around Media Break reports. Media Break is a television news program that reports on events throughout the city during the course of the game, informing you of crimes and violent outbursts. It is your job, as Robocop, to rid the city of crime and uphold the law (yes, again!). However, this is a lot harder than it sounds, even for Robocop.

The movie version starts off with a crime report and a villain on the run. Your Turbo Cruiser is the ideal street vehicle to pursue criminal and give urgent backup to your colleagues. The Turbo Cruiser is very easy to handle and grips the road extremely well. The city is split into four sections and only one section is displayed on the map at a time. The criminal you are pursuing is highlighted on the map as an orange square and your fellow officers are displayed in white. The only way to stop the criminals is to smash your car into theirs. This damages your car too, so caution and tactics are required.

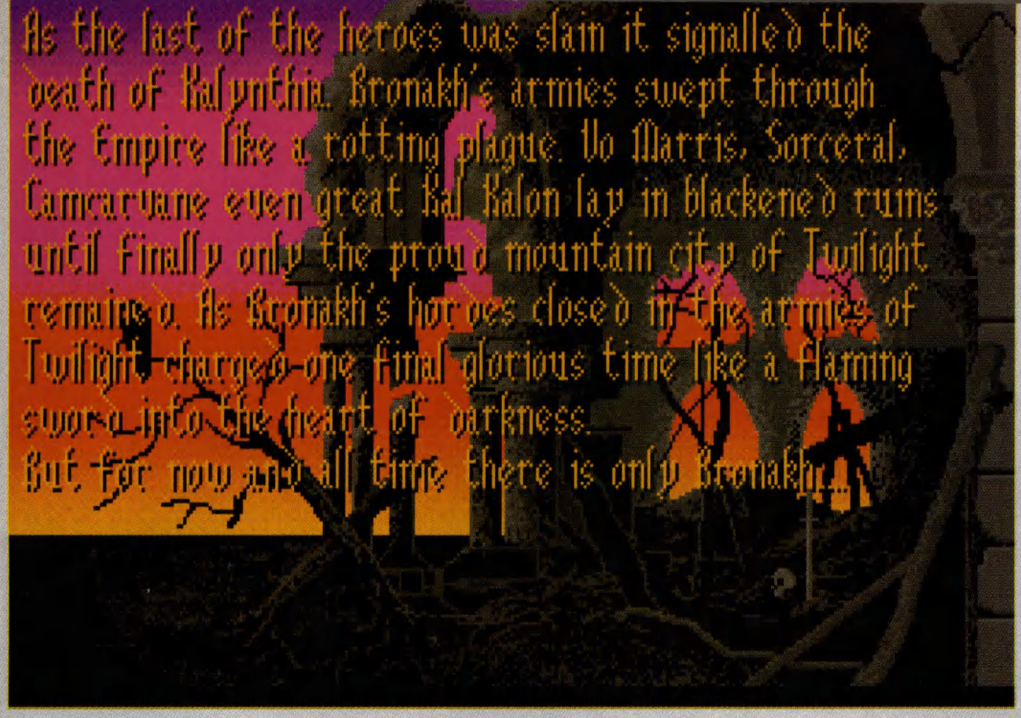
Sometimes you will be asked to attend a scene of a crime or give backup to a fellow officer. When you arrive at a building, you automatically get out of the car and enter the building. You are armed with your high powered gun, but don't get too trigger happy. Killing innocent civilians loses you points and lowers your efficiency level (a quote from the UK police manuals?). You start off with 100% efficiency and this drops as you get shot. When it reaches 0% you and the game will be terminated.

There are many scenarios to play including a terrorist takeover of the OCP building, testing the flying Gyrocycle, fighting a Japanese RoboNinja, and other settings which require fast reactions. If you play the arcade version, you can choose which scenario you want to play in any order.

The graphics used in Robocop 3 really make it stand out from other Ocean titles. 3D solid objects and multi camera angles prevent this from becoming a rather dull game. In the driving game, the function keys will give you different views of your car and the criminal's car. Pressing R on the keyboard gives you RoboVision which puts lines across the screen. (A nice touch but pretty pointless!) When Robocop is on foot the camera views show Robocop as a beefy solid figure. The frame update of the screen is very good, although some external views slow it down a little.

Robocop 3 is on par with Ocean's finest games such as F29 Retaliator. Each scenario creates a different atmosphere, from the fast car chases to the suspense and caution created by the building shootouts. An electronic key is supplied with the game which plugs into joystick port 2. This must be present at all times in to play the game, so it's best not to lose it!

Gary Fenton



PREVIEW

MONSTER FROM THE EAST

AUI preview of ABANDONED PLACES from Electronic Zoo

It's a classic storyline. Something large and powerful emerges from a dark, faraway place and threatens to change a country's way of life. But this isn't the scenario to a roleplaying game, it's an observation about such a game itself. Abandoned Places is the large and powerful thing; Hungary is its birthplace. If Abandoned Places does as well as it deserves to, it will not be responsible for changing one country's way of life; it will change the destiny of two.

Artgame, creators of Electronic Zoo's latest big game, is not the most famous of programming teams. In fact, if you claim to have heard of it, I'll accuse you of either lying, or of attending the trip that EZ's Stuart Bell organised to show us the game in Hungary's fascinating - and very cold - capital city, Budapest.

But what of the game itself? Well, it's a first in the roleplaying market, because it combines the two most popular types of the genre. Ultima fans will recognise the outdoor sections, with their overhead maps of Kalynthia, the fantasy world in which the game takes place. And to anyone who's played Dungeon Master, Eye Of The Beholder et al, the 3D dungeon scenes will be very familiar.

As is usual in fantasy worlds, an evil tyrant is setting out to rule the world. This particular nasty piece of work is called Bronakh and his occupation is Demigod. He'd like to drop the Demi and just be plain God, so he's looking for ways to do this - and you can bet that he won't ask the land's inhabitants to vote by secret ballot. So, in the true vein of all heroic happenings, you've got to assemble a team of adventurers and do battle with the despot.

Any roleplayer will know what's coming next. Having got the team together, you're going to have to go off into the land in search of quests, treasure, magic weapons and spells, monsters to battle and clues to Bronakh's whereabouts. What might come as a surprise is that you're not only going to have to face mapping the 32 3D dungeons - the last of which on its own is bigger than the whole of Eye Of The Beholder 2! - but you'll also have to slog your way around the lands of Kalinthia itself in search of each dungeon entrance.

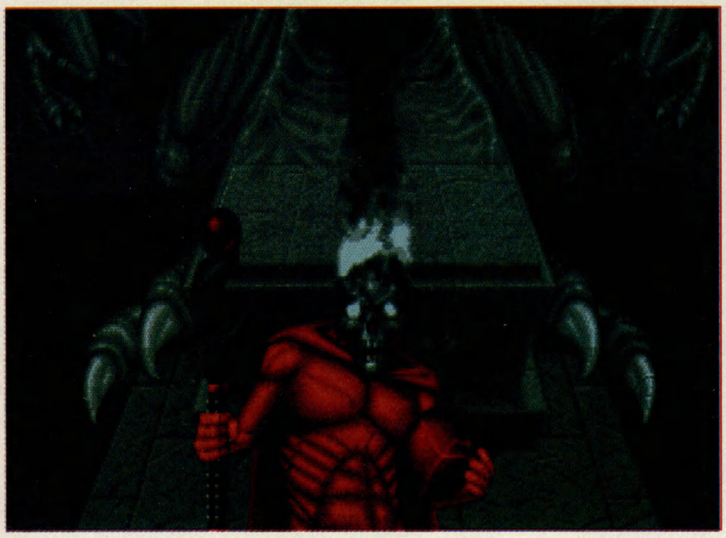
Plenty of suitably fantastic tunes and sound effects entertain your ears, but it's your eyes which will most impress your brain. Graphics in the wilderness are fair, but when you get underground you'll be amazed by the detail and variety of walls, objects, monsters and magic displayed on your monitor. Give your brain a moment to recover from the dual assault on eyes and ears and you might have a chance of grasping just how big the game is, too.

There's a lot more to be said once the promised finished version arrives shortly. For now, feast your eyes on some of these screenshots. And let's hope that our Hungarian friends continue to change the way in which software is developed and produced in this country and abroad.

Ashley Cotter-Cairns

ENTERTAINMENT

BARBARIAN II



PSYGNOSIS
£25.99

DECISION

86%

A very good release that will either make you play it for ages or will only get loaded a couple of times. Don't buy it if you're easily frustrated.

Graphics: 86%

Not quite the usual clarity of a Psygnosis game. It does have a nice feel to its display though.

Sound: 84%

Preferable to a Kylie Minogue album, but not U2. Good enough that you won't instantly turn down the monitor and switch on your stereo.

Gameplay: 91%

Big and bold, this is a game that needs perseverance, guts and lots of time.

Difficulty: 8/10

Not one for people who need instant gratification. You're going to have to stick at it for days.

Scenario aside (and who needs it in this type of game), Barbarian II is all about fighting for the cause of good (Hegor) versus evil (Necron). Hegor is a versatile if socially undesirable barbarian. Not only can he walk, run, jump and climb - all useful explorational skills, which you'd expect a stereotyped barbarian to possess as a matter of course - but he can wield almost any weapon with such aplomb that he'd put Roy Castle's world record for the most different types of musical instruments played to shame, if (a) Hegor were real and (b) he played musical instruments instead of wielding weapons.

This is a handy combination of talents, because to take on his evil brother, Hegor's going to have to explore the lands, roam among swamp, forest and plain and hit lots of monsters, some of which are extremely powerful. Hegor starts off with nothing and must find, by hook, by crook or by muscle, money to buy weapons and other useful items. He may be lucky enough to find weapons lying about too.

The graphics are very neat. They have that cartoon feel to them which only Psygnosis games have. However, it's not the company's best ever visual offering. The screen is made up from a variety of platforms and ladders, with monsters wandering about with nothing better to do than sap Hegor's energy. As the barbarian meanders in his well-animated way, encounters with said monsters will be more or less unavoidable.

Moves from the joystick have been kept simple to help the exploring aspect of the game and I think this is a good strategy. You are so eager to see the next area that you don't want to take forever on each battle; they are hard enough with just a few moves and still require concentration. Psygnosis has placed the emphasis firmly on adventure.

As you'd expect, puzzles need to be solved before you can progress to parts of the game that dim barbarians cannot reach. So a certain amount of brainpower will need to be engaged, too. Again, this might just be a case of finding the right key for the right door. Nothing too taxing, but enough to frustrate and cause addiction.

Barbarian II is a massive game that will appeal to arcade adventurephiles. Its sprawling map will take some cracking and the reaction side of things must be practiced to succeed. Nothing mould-breaking or particularly special, but another 'safe' Psygnosis release that is well designed and deserves to clock up a few thousand more sales.

Ashley Cotter-Cairns

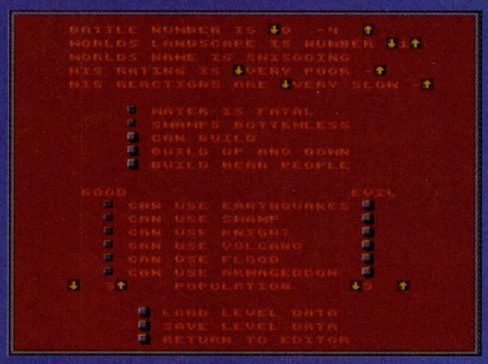
POPULOUS WORLD EDITOR

£14.99
Bullfrog/Electronic Arts

The graphic editor.

Here it is, the long overdue package you need to create your own worlds for the original Populous game. This is a simple program that allows the user to alter the original graphics or draw them from scratch. The editing environment is all icon operated, using the mouse. There are two sets of images to edit. These are land images which are graphics for buildings and the landscape, and then there are sprite images which are home to the graphics for the worshippers.

Once you have loaded in one of the image sets already on the disk, you are presented with a screen showing all of the images. Clicking on EDIT or on the image with the right mouse button will enter the graphics editor. On the right of the editing screen is a magnified version of the image you are editing. The painting functions are very basic giving you a choice of either draw or fill. Not to make it totally dull, Bullfrog have included some handy flip and rotate functions to aid you during editing. Luckily there is an undo button which essential if a graphics editor is to be at all usable. Merge and replace functions also help when editing. The palette is limited to a preset 17 colours including the background colour.



Various perimeters can be left up to you.

Editing a sprite means that there are up to 4 images (or cells) to make up an animation of a character walking or fighting. When you are happy with the graphics you can then edit various parameters for most images such as birth, death, manor and intelligence rates. Changing these values will effect play in the game.

When you have completed your new worlds you can load them directly into the original Populous game treating the new worlds as a data disk. The World Editor is a nice program with a good manual but will the ability to draw your own graphics for Populous really justify buying it? It's a pity you can't edit the sound samples. I would think buying Populous II is a much wiser option.

Gary Fenton

DECISION

65%

A good editor, but it doesn't really alter the game, just the visual aspect of it.

OH NO! MORE LEMMINGS

PsygnosisData Disk £19.99, Stand Alone version £25.99

Lets go! Yes, just as you are beginning to glue your hair back into your scalp, those evil guys at Psygnosis release another dose of Lemmings. Surely they have no mercy!

Lets go! Hi-ho, hi-ho...

Everyone must have heard of Lemmings by now and Commodore are even giving away the original with every Cartoon Classics pack. However if you are not too sure what all this "Oh no!" business is about then I'd better tell you.

Lemmings are a race of innocent creatures with little or no mind of their own. It's your job to help them find their way home safely by telling them what to do from a choice of 8 commands. You can order them to dig, build a bridge, climb, and my favourite, self-destruct. Some levels you will need to use variations of all 8 commands, and on some levels just one, such as tunnel.

The data disk or the stand alone version of "Oh No! More Lemmings" both feature 100 new Lemming adventures. The first 10 levels are simple, just to get you back in the mood, and the rest will have you bashing your head against your monitor singing "They're coming to take me away, ha-ha!" Sadly Psygnosis didn't think it was the right time to release Lemmings 2 with brand new commands and graphics. It's fair to say that the original Lemmings design has a few miles left in it yet.

The originality has faded since its release many moons ago but its appeal it still there. If you have suffered all 100 levels from the original version then you may like to take a look a More Lemmings. However, if you haven't got beyond level 40 of the original then keep going!

That's another fine mess you've got me into, Lemming!

Gary Fenton

DECISION

89%

The tried and tested winning formula

Graphics: 92%
Similar to those of the original, but with different levels.

Sound: 82%
Different music with the same Lemming cries.

Gameplay: 96%
It's still addictive!

Difficulty: 8/10
It's no secret: Keep playing the level until you crack it!

MATCH IT!

New Card Sets

New activities can be made for use by these programs using a Paint Package.

Card sets are brushes created in any paint package and saved into the Cards Drawer on the disc.

They must be cut out from a high-res ie. 640 x 256 screen. This restricts you to 4, 8 or 16 colours. The palette is also restricted to ensure that the screen buttons show up properly.

Max. no. of cards is 42 (6 rows of 7)
Max. no. of groups is 4

Once saved, the brush icon's tooltypes must be altered to inform the program how many cards are present and how they are grouped.

A Template picture and step-by-step guide to creating your own card sets is provided (see opposite).

Click on the card name to display it
Click again to return

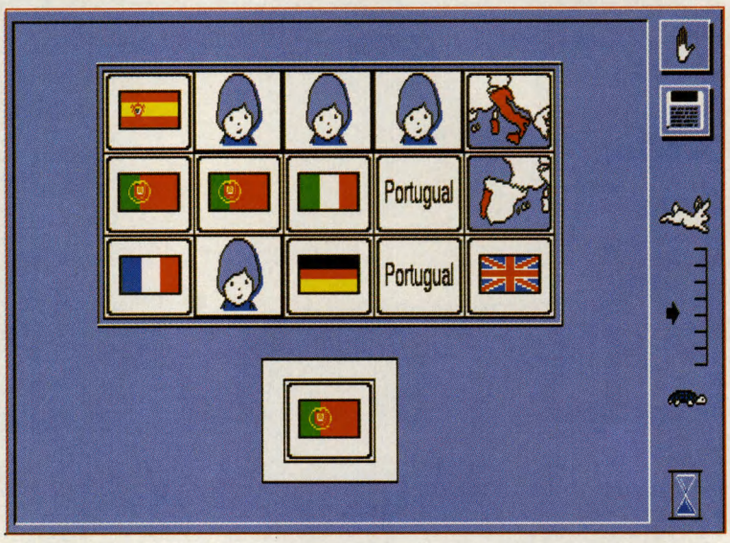
Numbers	3 sets of 10 cards
Colours	5 set of 7 cards
Addition to 10	4 sets of 9 cards
Letters	2 sets of 18 cards
Reflections	1 set of 18 cards
Flags & Maps	3 sets of 12 cards

By changing the number of sets defined for each pack, new activities can be created:

They can be simplified by reducing the number of sets.

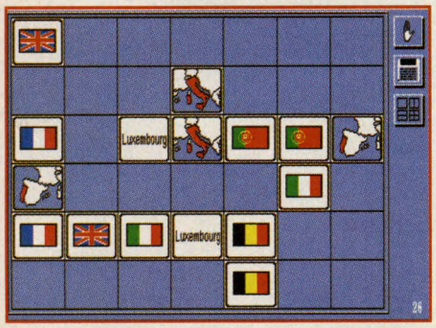
Changed in nature eg. make reflecting pictures match in Reflections

Click here to read the step-by-step guide



THINK LIMITED £19.99

(Tel: 021384 4168)



DECISION

78%

Fun for all the family in a non-violent, educational form

Graphics: 68%

Simple but perfectly adequate. Do I detect the use of Gold Disk's Hyperbook?

Sound: 50%

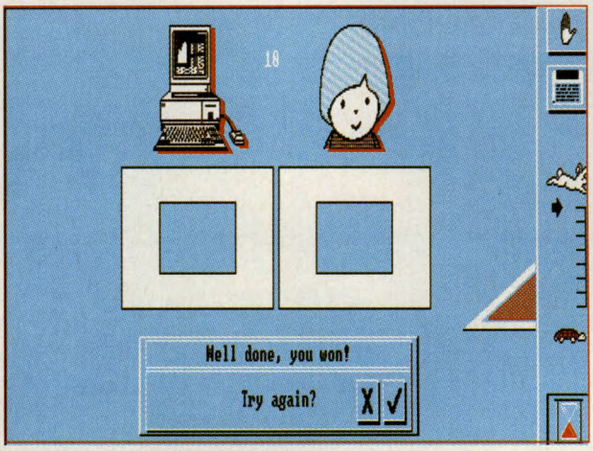
Just a few very computerish sounding words.

Gameplay: 91%

Not going to give up and go away, Match It! will stay popular.

Difficulty: 1-8/10

Simplicity can be brilliant. Less is more, said Mies van der Rohe. Think Limited do not set out to create complicated games with squillions of levels of multiple enemies and fearsomely huge guardians requiring hairtriggerr reactions possessed only of natural shoot 'em up stars like the late Tony Horgan. Nor do they go for the complexities fascinating to adventurous folk like our very much alive wizard of the puzzle world, Andy Moss. Though what Think create are certainly puzzles, generally they are aimed at those just starting down the road of gameplaying on computers or off. So what they provide is simple fare that could well have found its place in the Challenge!, the Special Supplement devoted to education in February *AUI*.



But educational games haven't had the greatest of presses. Kids have enough of education at school what they want at home is fun, often the mindless the better. Think however have got into their stride by producing games, such as Match It! that will appeal to plenty of subteenagers and also their parents. They are generall quite simple but offer a wide challenge to the the same hand/eye coordination as shoot 'em ups but with a strong element of mental stimulation too - even if that educational aspect is not obvious to the player.

The latest in their "Working with Pictures" is as successful as its predecessors have been. Match It! is not only one game though, it is three. Match It! requires the player to match up pairs of pictures which can be anything from single letters or numbers to numbers in domino dotted form or maps and flags of countries. There is a time limit before the computer claims the point. You have plenty of options to change all sorts of aspects to make it easier or more dificult.

Snap It! I think is the least successful of the three because it is just like the old card game of Snap! which unless it is played quickly and riotously can be a bit boring. So the computer version, in spite of being provided with loads of options of what to snap on, doesn't have much to offer without the noise and the action.

Remember It! is very good fun and the most demanding of intelligent concentration of the three. It also seem to have the largest element of luck involved which makes it just that more difficult and frustrating.

The games are provided with a very simple to use interactive manual on the disk itself. And the many option to change the grid of the puzzles for instance mean that the games have longlasting entertainment attraction.

These games are certainly intended for a younger audience but won't bore anyone who sits with the young player initially to help him or her along. They are good value for money and are an excellent introduction to the joys of what a computer can teach in a fun way. Mention *AUI* and you'll get £5.00 off.

Zach Skinner

SELECTED PERIPHERALS & SOFTWARE FOR THE AMIGA FROM SILICA SYSTEMS

ALL PRICES INCLUDE VAT & FREE DELIVERY

AMIGA

ATonce+ PC EMULATOR

ATonce Plus is a PC-AT compatible emulator for the Amiga 500. With ATonce Plus fitted, the Amiga can be used as a PC-AT compatible computer. The emulator works with all standard Amiga hard disk drives and provides compatibility with most printers. A professional fitting service is available for £34. If you own an Amiga 500 and require PC compatibility, you will not do better than ATonce Plus.

- FULL 80286 PC-AT EMULATION
- MDA, CGA, EGA & VGA GRAPHIC MODES
- MULTI-TASKS ALONGSIDE NORMAL AMIGA PROGRAMS
- COMPATIBLE WITH AMIGA HARD DRIVES
- CAN ADDRESS ALL AMIGA RAM - UP TO 9Mb
- RUNS EXTENDED & EXPANDED 80286 MODE
- LEAVES EXPANSION PORT FREE FOR MEMORY UPGRADES

vortex

❶ RRP: £249 **£189** Order Ref: EMU 2286

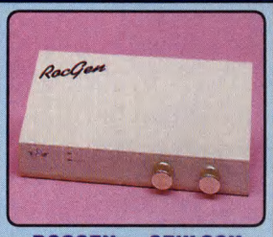
❷ GENLOCK DEVICES

ROCGEN GENLOCK

Vital for creating video titles and other special effects, a Genlock will also give you hours of fun mixing your Amiga created pictures and text with home videos.

- Overlaying of Amiga graphics on a video source
- Built-in hardware fading and overlaying
- Overlay, Fade and Amiga modes
- Fade and Overlay transparency control
- Works with all Amigas
- Composite video output
- Robust metal casing

ROCTEC ELECTRONICS LTD — RRP: £119.00 **£99** Order Ref: VID 1990



ROCGEN+ GENLOCK

A more powerful version of the best selling RocGen. The plus version features wider facilities, better image quality and improved styling. The best value genlock available.

- Overlaying of Amiga graphics on a video source
- RGB and video pass through
- Hardware fade for overlay and fade
- Keyhole effect - replace any colour with an Amiga image
- Optional chroma key

ROCTEC ELECTRONICS LTD — RRP: £199.95 **£149** Order Ref: VID 2000

❸ VIDEO TITLING

SCALA

Scala allows you to create professional quality video titles and credits with its complete range of backgrounds and wipes. Scala requires a hard drive & 1Mb chip RAM.

- 59 quality backgrounds, 90 example brushes
- 52 Different wipes and 50 text line wipes
- Multiple font support - 17 fonts supplied
- Ideal for use with RocGen or RocGen+
- Loads pictures, brushes animations and text

Digital Vision — RRP: £264.38 **£199** Order Ref: ASS 0962

❹ 3½" FLOPPY

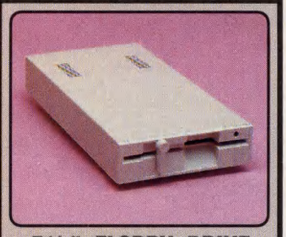
SLIMLINE 1Mb 3½" FDD

The new Slimline drive from Silica will not only make the Amiga seem faster, but also easier to use, with less swapping of disks. This drive is becoming the market leader.

- Compatible with all Amiga's
- Full tested design ensures reliability
- Solid, reliable build quality
- Comes complete with all cables
- Compact, slim design
- 880K formatted capacity

SILICA SYSTEMS — RRP: £79.00 **£59** Order Ref: DRI 0555

❺ 5¼" FLOPPY



5¼" FLOPPY DRIVE

If you use ATonce Plus or any other PC emulator, then this 5¼" floppy disk drive will provide you with full compatibility with any PC 5¼" 360K or 720K PC disks.

- 40/80 track switchable
- Ideal companion for any PC emulator
- Simple plug-in-and-go operation
- Compatible with most popular MS-DOS disk formats
- Includes all cables

ROCTEC ELECTRONICS LTD — RRP: £99.95 **£79** Order Ref: DRI 4650

❻ ANIMATION

SHOW MAKER

Show Maker allows the creation of complex presentations. Sequence and synchronize animation, titling, stills, music, sound effects and video. Needs hard drive & 1Mb chip RAM.

- Storyboarding
- Synchronize animation to music
- MIDI sound effect control - including SMPTE/MTC
- Background music looping
- Intelligent autoloading of animation & graphics

GOLD DISK — RRP: £249.95 **£179** Order Ref: ASS 4102

❼ DTP PACKAGE

PROFESSIONAL PAGE 2

A fully featured page layout program allowing you to create adverts, menus, books - in fact anything requiring text and graphics to be mixed together. The best DTP package available.

- Pantone and 24-bit colour support
- Advanced typographical control
- Text and graphics rotation
- Built-in word processor and spelling checker
- Extensive range of fonts available

GOLD DISK — RRP: £249.95 **£179** Order Ref: ASP 7932

❽ B/W SCANNER

DAATAscan PROFESSIONAL

Allows graphics to be scanned into the Amiga and used in graphic packages or DTP programs. An ideal all-in-one solution for your black and white scanning requirements.

- Professional scanning software supplied
- Switchable resolutions: 100-400dpi
- High-speed printing option to laser printers
- Real-time scanning display
- Fully compatible with DTP & graphic packages
- 64 grey scales

PANDAAL — RRP: £189.95 **£169** Order Ref: SCA 2425

❾ WORD PROCESSOR

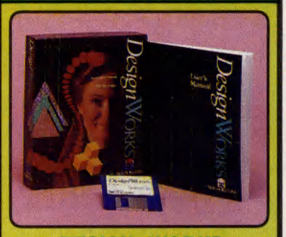
PRO WRITE 3

A sophisticated word processor, aimed at serious users. Features full graphics support, 100,000 word spelling checker, macros, multiple fonts and sizes.

- Very easy to use fully featured word processor
- 100,000 word spelling checker,
- 300,000 word thesaurus
- Full graphics support with text wrapping
- Multiple fonts and sizes

New Horizons — RRP: £129.95 **£89** Order Ref: ASP 8802

❿ ART/DRAWING



DESIGN WORKS

Unleash the artist within you. Design Works is a fast, easy-to-use, high quality structured drawing program that enables you to achieve professional results.

- Macros
- Very wide range of drawing tools
- Import/export IFF pictures
- Near Postscript quality printing on dot matrix printers
- Multiple layers

New Horizons — RRP: £79.95 **£59** Order Ref: ASD 5452

SILICA SYSTEMS OFFER YOU

- **FREE OVERNIGHT DELIVERY:** On all hardware orders shipped in the UK mainland.
- **TECHNICAL SUPPORT HELPLINE:** Team of Amiga technical experts at your service.
- **PRICE MATCH:** We normally match competitors on a "Same product - Same price" basis.
- **ESTABLISHED 12 YEARS:** Proven track record in professional computer sales.
- **BUSINESS + EDUCATION + GOVERNMENT:** Volume discounts available for large orders.
- **SHOWROOMS:** Demonstration and training facilities at our London & Sidcup branches.
- **THE FULL STOCK RANGE:** All of your Amiga requirements from one supplier.
- **FREE CATALOGUES:** Will be mailed to you with offers and software/peripheral details.
- **PAYMENT:** By cash, cheque and all major credit cards.

Before you decide when to buy your new peripherals and software, we suggest you think very carefully about WHERE you buy them. Consider what it will be like a few months after you have made your purchase, when you may require help and advice. Will the company you buy from contact you with details of new products? At Silica Systems, we ensure that you will have nothing to worry about. We have been established for over 12 years and, with our unrivalled experience and expertise, we can now claim to meet our customers requirements with an understanding which is second to none. But don't just take our word for it. Complete and return the coupon now for our latest Free literature and begin to experience the "Silica Systems Service".

MAIL ORDER HOTLINE 081-309 1111

SILICA SYSTEMS

MAIL ORDER:	1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX		**Tel: 081-309 1111**
Order Lines Open:	Mon-Sat 9.00am-6.00pm	No Late Night Opening	Fax No: 081-308 0608
LONDON SHOP:	52 Tottenham Court Road, London, W1P 0BA		**Tel: 071-580 4000**
Opening Hours:	Mon-Sat 9.30am-6.00pm	No Late Night Opening	Fax No: 071-323 4737
LONDON SHOP:	Selfridges (1st Floor), Oxford Street, London, W1A 1AB		**Tel: 071-629 1234**
Opening Hours:	Mon-Sat 9.30am-6.00pm	Late Night: Thursday until 8pm	Extension: 3914
SIDCUP SHOP:	1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX		**Tel: 081-302 8811**
Opening Hours:	Mon-Sat 9.00am-5.30pm	Late Night: Friday until 7pm	Fax No: 081-309 0017

To: Silica Systems Ltd, Dept. AUI, 0392-67, 1-4 The Mews, Hatherley Rd, Sidcup Kent, DA14 4DX

SEND ME AMIGA PERIPHERALS/SOFTWARE INFORMATION

I am interested in: ❶ ..... ❷ ..... ❸ ..... ❹ ..... ❺ ..... ❻ ..... ❼ ..... ❽ ..... ❾ ..... ❿ .....

Mr/Mrs/Ms: ..... Initials: ..... Surname: .....

Address: .....

.....

..... Postcode: .....

Tel (Home): ..... Tel (Work): .....

Which computer(s), if any, do you own? .....

E&OE - Advertised prices and specifications may change - Please return the coupon for the latest information.

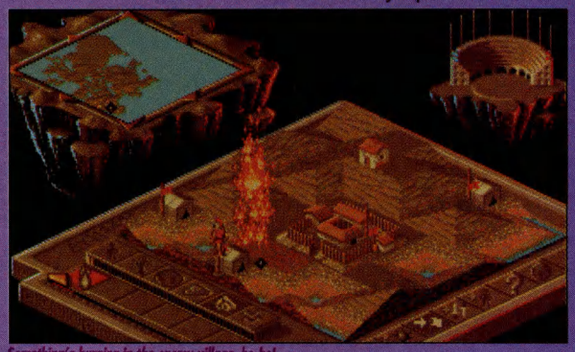
POPULOUS II

BULLFROG/ ELECTRONIC ARTS £29.99

AUI CLASSIC GAME AWARD

One of the most original games of all time has returned in its second incarnation. The gameplay hasn't changed in Populous II and is in fact much the same as that of the original.

Major differences include many new powers and bigger graphics. Populous II is played by conquering worlds by battling a bad opponent. You are a good god and must prove your value to Zeus if you want to live along side him, hence the game is dubbed Trials of The Olympian Gods.



Something's burning in the enemy village, he-he!

Each world has land and water with a small population of both good and bad worshippers. To obtain more power (called mana) you must have a lot of worshippers. This is done by raising and lowering the land until your people have a patch big and flat enough to build a dwelling. If there is enough flat land without any obstructions, such as rocks, then your people can build larger dwellings such as castles. As your worshippers multiply they will walk the country in search of new land to build a house upon.

Meanwhile in another part of the world your opponent is also working towards your mutual goal. As soon as his mana allows him, he will do everything he can to hinder your progress and wreak terror on your villages. The powers of Divine Intervention are different for every game you play, forcing you to alter your tactics accordingly.

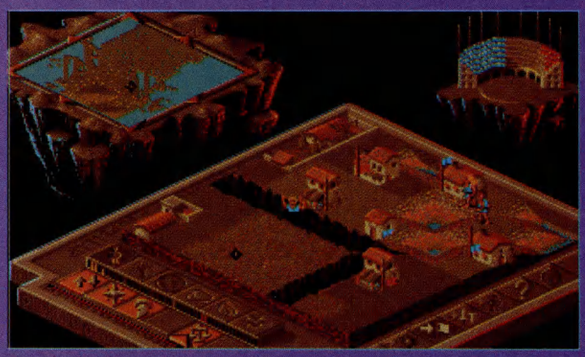
Fire from the skies and lethal swamps.

Divine Intervention effects are given to you before the start of each game. When you win a game you are awarded experience which is represented by a lightning bolt. The better you do the more experience you are awarded. You can invest your experience in any of the 6 effects categories to strengthen the effects next time you use them. The six categories are People, Vegetation, Earth, Air, Fire, and Water. There are 5 effects from each category making a total of 30 different and awesome Divine Intervention commands.

You cannot play all 30 effects in one game since you are limited to those automatically selected for you before the start of each game. Further more, you can only use the powers available when you have enough mana to perform them. The amount of mana you have acquired is displayed as a red line underneath the intervention command buttons.

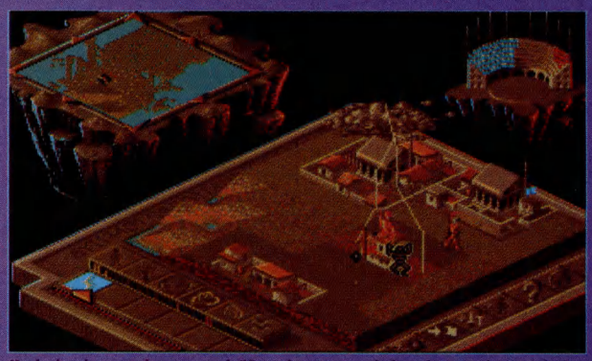
There are six new heroes which can be created once you have a leader. Your leader is the first worshipper to touch your Papal Magnet which is placed randomly as the game starts.

Just as you have your good Papal Magnet, your opponent has his bad Papal Magnet. If the bad Magnet is on your land you'd better watch out for bad walkers trying to reach it. You can keep out unwanted enemies by building city walls from the Earth category of effects, if you are allowed to use that power. Volcanoes are better represented in Populous II than the earlier version because they erupt actually spewing lava over the nearby villages burning them and leaving land almost unusable.



An earthquake splits open the land causing havoc.

Just as the original Populous had a datalink feature, so too does this version. This allows you to play a friend by connecting a lead from his computer to yours. The only problem is that you may not be talking to each other for some time afterwards! Hard disk users should be aware of a bug which can be remedied by pulling the Workbench screen all the way down before loading Populous II. The only hardware requirement is one megabyte of RAM.



My cloud can be targeted on an enemy building to burn it, or on a bad worshipper to electrocute him!

Populous II is everything I hoped it would be and is in no way at all disappointing. Fans of the original will love the sequel and readers who have never played Populous should be ashamed and delighted!

Gary Fenton

DECISION

95%

A worthy follow up to the original classic game.

Graphics: 94%

Very detailed and well animated. Noticeably better than in the original.

Sound: 94%

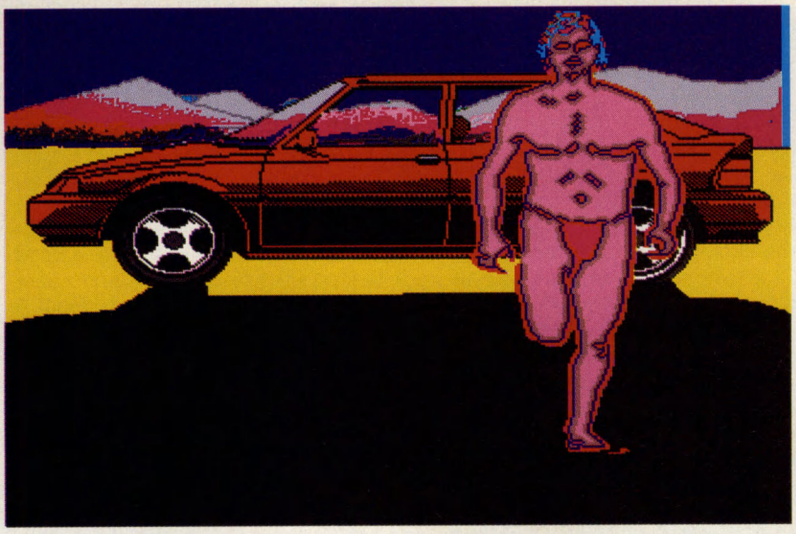
Sound adds atmosphere and alerts you to most events such as an earthquake or storm. Effects are bountiful and realistic.

Gameplay: 96%

Even more playable than the original, thus even more addictive. Controls are easy (icon based) and responsive.

Difficulty: 7/10

Each world is marginally more difficult than the previous world which helps build up your skill to face the really tough gods.



Special Reader Offer:
Special Reader Offer:
Special Reader Offer:

MOVE IT.
SLIDE IT.
PUZZLE IT
ANDCLIPIT!!

Play and practicality are combined in this month's great value special offer for readers of AUI. Five super software programs from Think Ltd.

Clip Art Collections

Make even better use of the graphic capabilities of your Amiga. We are offering over SIX HUNDRED different pieces of superbly detailed clip art which will run in all Amiga graphics programs - DTP, Word Processors Video, Art Databases and so on. Turn boring reports and documents into exciting to see works of art!

Our three different libraries cover:

★ **Transport and Signs:** Over 200 different images featuring trains and boats and planes and just about everything else that moves as well!

★ **Human Biology:** (2 disc set) 200 beautifully detailed drawings of the human organs and processes both labelled and unlabelled.

★ **At Home:** Over 200 everyday items captured on disc from beds to bookshelves and shovels screwdrivers and, of course, the kitchen sink.

Not only do you get the pictures but we also include an invaluable guide to creating your own material and suggestions as to how to use them in different applications

To take advantage of our offer please fill in the attached coupon and return it to us or ring our ORDER HOTLINE on 091 510 2290 for Credit Card orders. Our prices INCLUDE Post Packing and Handling anywhere in the U.K.

Send to: THE *AUI* READER OFFER, c/o/ Lazahold Ltd. PRE Complex, Pallion Industrial Estate, Sunderland, SR4 6SN. OR RING OUR ORDER HOTLINE ON 091 510 2290 (24 Hours Service)

Please send me:

Transport and Signs ClipArt @ £12.50 .....

At Home ClipArt @ £12.50 .....

Human Biology ClipArt @ £20.00 .....

Jigsaw @ £14.99 .....

Move-It & Slide It @ £14.99 .....

Name: Mr/Mrs/Ms ..... Initials .....

Surname .....

Address: .....

.....

.....

..... Postcode: .....

Please send cheque/Eurocheque/Postal Order made payable to "MCPC" (In £'s Sterling)

Access/Mastercard/Eurocard/Barclaycard/Visa:

☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Expiry Date: ☐☐☐☐

PLEASE ALLOW UP TO 28 DAYS FOR DELIVERY

AUI

ADVENTURE NOW

With ANDY MOSS

ONCE AGAIN ANDY MOSS OPENS HIS ADVENTURING CHRONICLES AND DISCOVERS THAT A HARD NOVA'S GONNA FALL (IS THAT A SONG?). ALL THE NEWS AND VIEWS RIGHT HERE, IN THE COLUMN OTHER MAGAZINES ONLY TALK ABOUT.

It has been quite an interesting month all in all. One one hand, I attended a launch by Mindscape for the latest addition to the Ultima family, ULTIMA VII The Black Gate, and saw at last the Amiga version of Ultima VI. On the other hand, I paid a visit to Virgin, and was granted a hack and a slash on MOONSTONE and a peek at FLOOR 13. Got back just in time to review HARD NOVA and RULES OF ENGAGEMENT from EA with a bit of STRATEGO thrown in for good measure. All that and this month's Monkey Island solution as well, so on with the newsdesk....

ADVENTURE NEWS

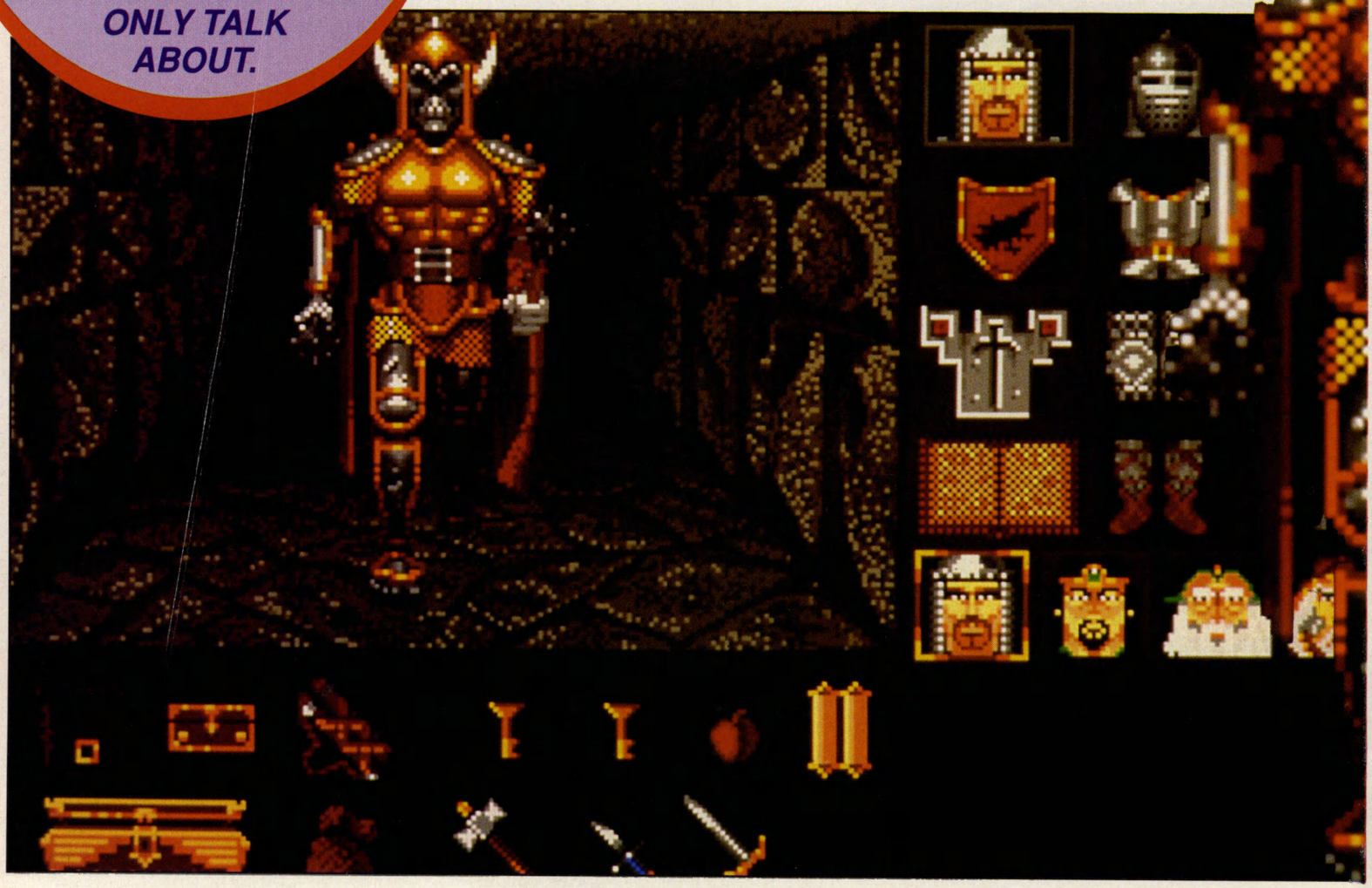
YOUR VIRGIN REALM?

What?! For the first time, say Virgin, you can take complete control of your destiny, as in REALMS you attempt to dominate an entire world (Is that all?). With Dad dead, you take over the realm, but there is work to be done for your neighbouring realms have declared war with each other and you, what to do? Do you barter or fight, remember the prize is ultimate dominance, now that's what dad would have wanted isn't it? 125,000 miles of fractal landscape, 128 armies and countless cities await. A review next month.

While we are at Virgin, FLOOR 13 is just great. I broke the news about it over the last few issues, about how government have taken an interest in it, not to mention MI5. Well, the reality is that the game is actually quite clever, because by using a series of static info screens, which represent your office computer terminal, you manipulate proceedings to maintain the government popularity (carry out torture, send out disinformation etc,) all without the knowledge of the existing intelligence services. And it must remain that way.

Also from Virgin comes CONAN THE CIMMERIAN, with 200 locations, taverns, crypts, dungeons, temples and tombs, lavish homes and poor hovels. All this on 600 screens of buildings and tunnels that await exploration.

Also, SHUTTLE is nearly finished, and is causing real excitement for the people down in Ladbroke Grove, as they say it is the nearest yet to a real space sim!!

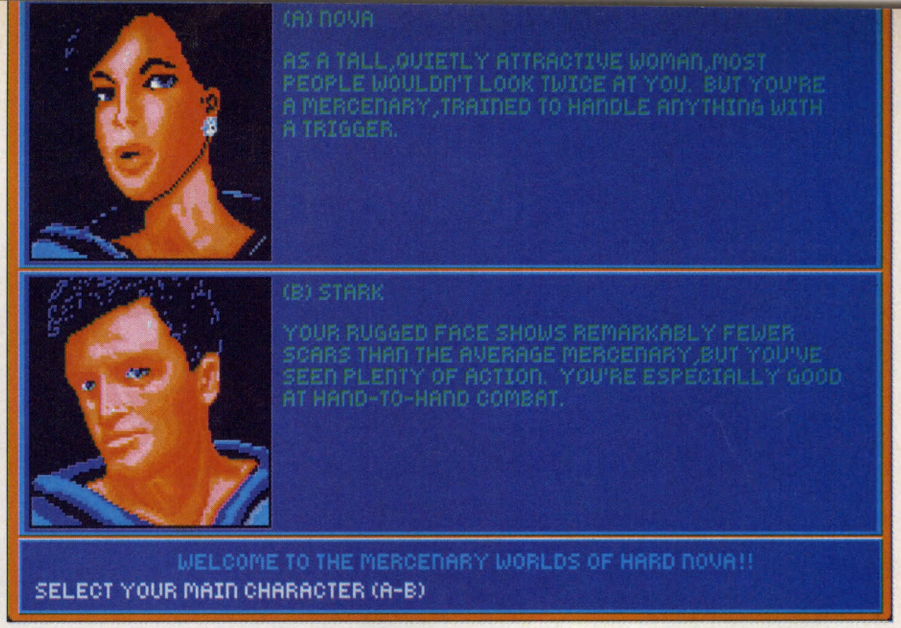


ALL NEW ULTIMA

So Ultima VII is launched, amid a sea of ballyhoo about the redesigned art and animation and music. Not before time I say, I mean we put up with the little stick figures that have become the Ultima trademark, merely because the gameplay is so complex and Brittania has grown in legend to rival Middle Earth and The Great Underground Empire of Frobozz! But that is no substitute for the incredible art that we have been getting from Sierra or Lucasfilm. Recognising this, Origin have employed an army of artists and composers to bring Ultima bang up to date. With Black Gate (only on PC at the moment) we have environmental sound synchronised to on screen action, a new conversation interface and a full length musical score. The plot briefly, zips you back to Britannia 200 years since your last visit, to find an incurable disease striking the mages, pollution is rampant, and a wave of gruesome murders is sweeping the country.

BLACK IS THE COLOUR AT EA

The Black Crypt is a fantasy RPG using the now standard first person viewpoint. It has been created by four guys who wanted to create a fantasy dungeon exploration that really put the Amiga through its paces. In fact they think of it as a 'dungeon simulator' rather than a game. From the screens shown here, you can see that they may have a point.



ADVENTURE REVIEWS

HARD NOVA

Electronic Arts £25.99

Aha! Shades of Wing Commander II installation here, with a certain amount of 'file unpacking' to be done before you can play the game, but the wait is just about worth it, because where say, Starflight 2 falls down, Hard Nova most certainly gets up and climbs the mountain. The trading aspect is there, the crew generation is there, the exploration is most definitely there with plenty of planets in the Four huge systems to land on and explore (hence all the file unpacking) and best of all, the graphics and sound are superior.

"You are for hire to anyone who has money to part with."

You are Nova, one of the best mercenaries in the Four Systems and spend most of your time doing illegal activities, only there are no police to enforce the so called law on the Frontier so smuggling is rife. You smuggle cargo, usually arms and ammo and do odd jobs freelancing in the Starkiller Mercenary Group. You are for hire to anyone who has money to part with. You begin the game having just escaped with your life from a freak accident which cost you not only your spaceship, but the lives of most of your loyal and trusty crew. The Group have provided you with a new basic ship, but it is up to you to find a new crew and build up their skills and experience all over again.

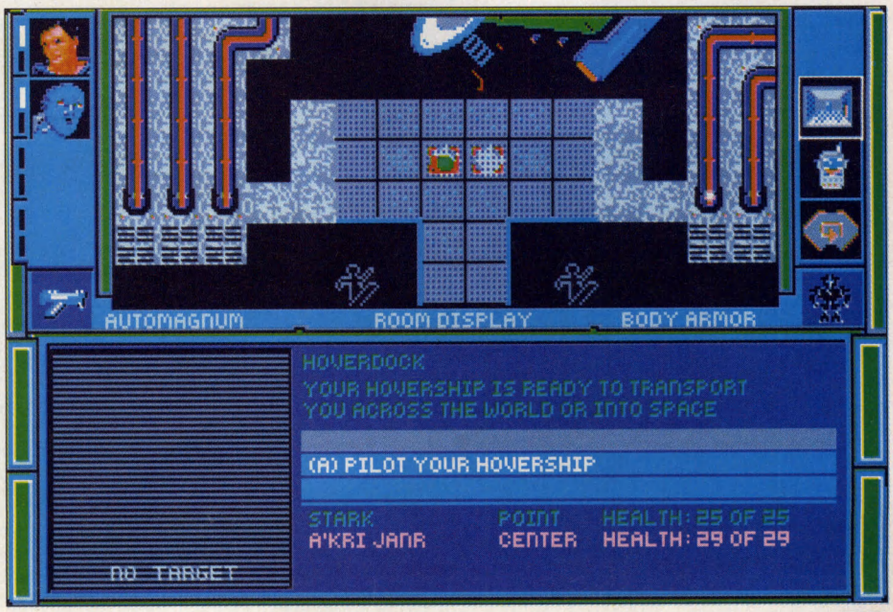
That done, it's all about making money, sticking your nose into other people's business, playing the odd game of zero-g roulette and shooting across the Systems in search of fame and fortune.

The screen look is very similar to Megatraveller, with scrolling areas for planet and building interior exploration. The character interaction takes place in real time with conversations being your main source of information - so think before you speak.

The top two thirds of the screen is taken up with the scrolling map area with the bottom third reserved for text info and a variety of action buttons. However, there are a number of icon and keyboard shortcuts situated all around the screen for which you do need to indulge in a bit of manual digestion in order to fully utilise their function.

Ultima and Megatraveller fans, get this one tomorrow, for the rest of you it is a good rpg buy but bear in mind it's a whopper to explore.

GRAPHICS	80%
SOUND	70%
GAMEPLAY	90%
DECISION	85%



MOONSTONE
Mindscape £25.99

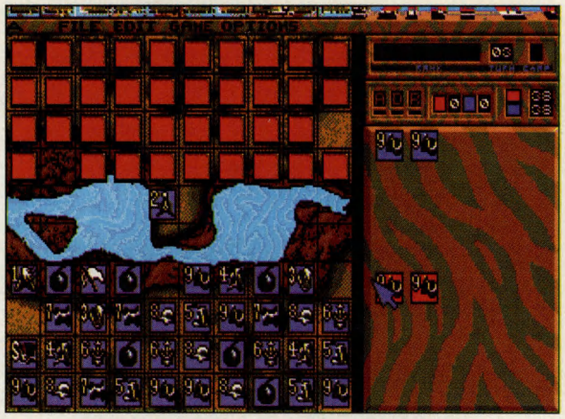
A veritable feast of hack 'n slay awaits you here in a setting that does more for the blood donor business than Dracula. Pints of the red stuff come pumping out of the severed heads and torsos of your victims as you slash and swipe your way to find the four keys that will gain you admittance into the Valley of the Gods, in which lies the sacred Moonstone.

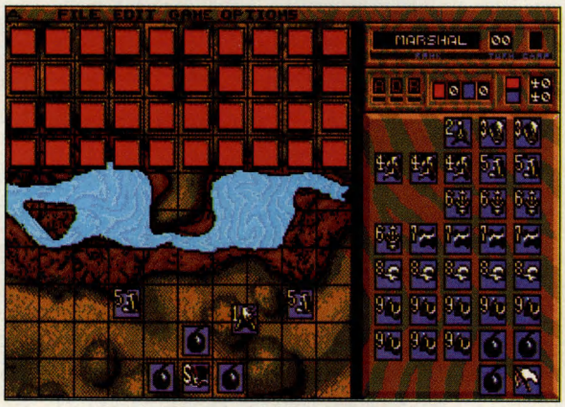
Once you have it you must race back to Stonehenge, still swiping heads off, to offer it to the great God Danu. In return the prize of ultimate and absolute power and most probably a seat on the board at Spurs is yours. If this all sounds a bit easy you'd be wrong, because there are three other computer/ human players trying to do the same thing as you, and they are no pushovers if you are unlucky enough to bump into one of them, I can tell you!

The land comprises of four territories, the Northern Wastelands, Misty Moors, Great Forest and the Wetlands. In each territory are six lairs containing all manner of nasties, however only one lair has the key you seek but you do get loads of goodies and gold when you defeat the monsters of any lair. Two cities are also located in the game, where magic, healing and trading can take place, not mention a spot or two of gambling.

This is a top drawer product from Mindscape and although it is all built around a basic fighting arcade theme there is a strong D&D RPG element running right through it, and let's face it, isn't fighting the basis of adventuring anyway? Moonstone has loads of RPG ingredients, taverns, wizards, druids, black knights, magic, weapons, armour, hit points etc. No real strategy to think about but heaps of monsters and mayhem all in gloriously beautiful graphics. Lovely.

GRAPHICS	**95%**
SOUND	**90%**
GAMEPLAY	**60%**
DECISION	**90%**





STRATEGO
Accolade £24.99

This is a computer representation of the classic boardgame battle simulation, faithfully reproduced in all its glory by Accolade. The game is a contest of wills between two evenly matched armies meeting on a rugged battlefield. The object is to capture the opponent's flag before he captures yours, which is no easy task mainly because you do not know which piece your opponent has until you attempt to take it. If its rank is higher than yours, it stays and you lose your piece. On top of that, there are spies, mines and scouts to aid or hinder your task, and a variety of different rules ranging from single player through to full tournament edition. It is a chess/wargame mix, a perfect case for conversion to a computer format.

GRAPHICS	80%
SOUND	60%
GAMEPLAY	80%
DECISION	80%

RULES OF ENGAGEMENT
EA/Mindcraft £30.00

A very American product this one, that is really only for the war game boffins amongst us. It puts you at the helm of the massive space fleet of the Federated Worlds, and all the responsibility that entails. Rarely have I seen such a dazzling array of buttons to click on in every screen, which Mindcraft call 'fully visualised control panels and situation screens', I call them bloody confusing and complicated! Make no mistake, this is a heavyweight number that can provide you with wait for it, millions, yes millions of missions to undertake. This is due to the integrated mission builder program within the game. You can design your own spaceships, alien enemies, and star systems, and then drop your Commander into the middle of it all.

Essentially the game is a series of information screens ranging from choosing which enemy races to fight (there is a complete history on each) designing your fleet with custom made ships, navigating and fighting in space and fulfilling given missions (there are over twenty built in to start you off). The most complicated screens are in the navigation and combat areas, where careful use of your on-board computers and strategic marshalling of your forces is paramount, and requires a great deal of careful reading of the operations manual which runs to over 210 pages. The graphic animation is very limited, so no pretty pictures, but a very compelling war game all the same.

GRAPHICS	**30%**
SOUND	**20%**
GAMEPLAY	**90%**
DECISION	**70%**

THE MONKEY ISLAND SOLUTION *Continued.....*

Last month we left Guybrush about to set sail for the cannibals in his rowing boat. . . Sail north, and leave the boat on the beach at the uppermost part of the island. Walk to the village, and go left and collect the bananas from the bowl of fruit. Walk right, and get caught by the cannibals. They will lock you in a hut, which is easy to escape from, just lift up a loose floorboard. Leave after collecting the skull and bananas, go back to the monkey and give him all of them. Now he will follow you everywhere, so go to the giant monkeyhead in the clearing, and examine one of the noses on the totem pole just inside the fence. Pull it, and the fence will open, and the monkey will keep pulling the nose so that the fence stays open all the time. Go in to the sacred area, and pick up the small idol, return to the cannibals and offer it to them in exchange for your life. Once they agree, also offer them the leaflet on 'get ahead in navigating'. They will give you a shrunken navigating head. Go into the hut where you were imprisoned, and get the banana picker and go give it to Herman, who will give you the key to the monkey head in return.

Go back to the clearing, and use the key on the head's ear. Go in and explore the caves using the head to guide you to Le Chuck's ship.

Do not board the ship yet! Persuade the head to give you the necklace of invisibility that is around its neck by threatening it. Once you have it, put it on and board the ship.....

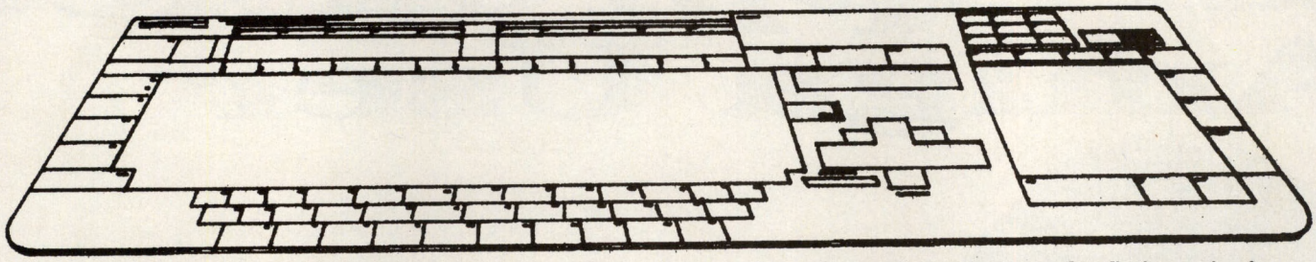
Continued Next Month.

THAT'S IT FOR ANOTHER MONTH, LOOK OUT NEXT TIME WHEN YOUR HERO PUTS SUSPICIOUS CARGO, KNIGHTMARE AND SPACE 1889 THROUGH THEIR PACES. SEE YOU THEN.

AMIGA KEYBOARD OVERLAYS

...now you can write the keyboard commands on the keyboard!

...no more referring to the manual for which key does what



Get one for each of your favourite programs and speed up the human interface - brilliant for flight and other simulators, and for games, music, graphics, DTP, word processors, programmers & all.

Silverbird computing

Cheques and money orders only to Silverbird, Dept A3 47 Barton Road, Harlington, Bedfordshire, LU5 6LG, England.

For all Amigas except A1000

Sold only in packs of five for £6.20 PLUS post and packing: UK £0.80, Europe £1.50, Rest of the World £2.50.

Global Software

MAIL ORDER COMPUTER SOFTWARE FOR HOME AND BUSINESS

3D Soccer	18.99
688 Attack Sub	17.99
A10 Tank Killer	22.99
Accolade Sports	20.99
Action Stations (1 Meg)	21.99
Advanced Destroyer SIM	19.99
Amnios	17.99
Armalyte	17.99
Armour Geddon	18.99
Atonimo	18.99
Backgammon	18.99
Battle Command	17.99
Battle Chess	17.99
Bill & Ted's Adventure	19.99
Billy the Kid	18.99
Blue Max	20.99
Brian Clough's Soccer	17.99
Cadavar	18.99
Champion of the Raj	17.99
Chess Player 2150	18.99
Chuck Rock	17.99
Chuck Yeagar	18.99
Cluedo Master Detective	18.99
Coin-op Hits 2	20.99
Conflict in Middle East	20.99
Corporation	18.99
Cruise for a Corpse	18.99
Cyberball	17.99
Das Boat	22.99
Disk	17.99
Dragon Wars	18.99
Dragons Lair 2	27.99
Duck Tales	17.99
Elite	15.99
Encounter	16.99
Eye of the Beholder	20.99
F-23	20.99
F-15 Strike Eagle 2 (1)	23.99
F-19 Stealth Fighter	19.99
Fists of Fury	19.99
Flight Sim 2	23.99
Full Blast	21.99
Full Contact	7.99
Gauntlet 3	18.99
Gem X	17.99
Giants	19.99
Gods	19.99
Golden Axe	16.99
Halls of Montezuma	18.99
Heroes	21.99
Heroquest	17.99
Indianapolis 500	17.99
James Pond	17.99
J. White Snooker	19.99
Katakis	18.99
Kick Off 2	16.99
Leisure Suit 3	25.99
Life and Death	18.99
Lotus Esprit	17.99
Lotus Esprit II	18.99
M1 Tank Platoon	19.99
Manchester United	17.99
Mercs	19.99
Midwinter	19.99
MIG 29	24.99
Mighty Bomb Jack	18.99
Moon Base	25.99
Navy S.E.A.L.S	19.99
Ninja Remix	17.99
Nuclear War	18.99
Operation Stealth	17.99
PGA Tour Golf	18.99
Pirates	18.99
Populous	17.99
Power Pack	21.99
PP Hammer	17.99
Predator 2	17.99
Prehistorik	18.99
Pro Tennis Tour 2	17.99
RBI 2	20.99
Railroad Tycoon	23.99
Risk	18.99
Robocop 2	17.99
Scrabble Deluxe	17.99
Secret of Monkey Is'ld	19.99
Sega Master Mix	20.99
Silent Service	18.99
Sim City	19.99
Sim City/Populous	19.99
Skate or Die	18.99
Space Quest 4	25.99
Speedball 2	18.99
Spirit of Excalibur	19.99
Spy Who Loved Me	16.99
Steve Davis Snooker	7.99
Squash	18.99
Stratigo	19.99
Switch Blade 2	18.99
Toki	17.99
Toyota Celica GT Rally	17.99
Trivial Pursuit	18.99
Viz	17.99
Wheels of Fire	19.99

BUSINESS SOFTWARE

HiSoft Basic	65.99
Home Accounts	21.99
Infofile	39.99
Interspread	39.99
Kspread 3	65.99
Powerworks	89.99
Protext Version 5	139.99
SBA Cash	69.99
Superbase 4	369.99
Superbase Professional	219.99
System 3	39.99
Intersound	39.99
Interword	39.99
S'base Pers II	89.99
Superplan	89.99
Wordworth (1 meg)	99.99

BUDGET

3D Pool	7.99
A.P.B.	7.99
After Burner	7.99
Barbarian 2	7.99
Blazing Thunder	6.99
California Games	7.99
Carrier Command	7.99
Conflict	4.99
Crazy Cars	6.99
Double Dragon	7.99
Drum Studio	4.99
Fantasy World Dizzy	6.99
Ferrari Formula 1	8.99
Gauntlet 2	7.99
Hard Driving	5.99
I.K.+	7.99
Impossible Mission 2	6.99
Kult	6.99
Last Ninja 2	7.99
Licence to Kill	7.99
Lombard RAC Rally	7.99
Outrun	6.99
Platoon	7.99
Populous Data D	8.99
Pro Tennis	4.99
R-Type	6.99
Rambo 3	7.99
Speedball	7.99
Strikeforce Harrier	8.99
Super Hang On	7.99
Switch Blade	7.99
Toobin	6.99
Treasure Island Dizzy	4.99
Ultimate Darts	6.99
Wacky Darts	6.99
World Class Leaderboard	7.99
Xenon	6.99
Xenon 2 Megablast	7.99
Yogi's Great Escape	7.99
Zork 3	7.99

0.5Meg Upgrade+Clock	39.99
0.5Meg Upgrade no Clock	29.99
1.5Meg Upgrade	75.99

Other accessories available

ALL TITLES ALL FORMATS AVAILABLE ON REQUEST

Global Software
10 Charterhouse, Great Mistley,
Basildon, Essex, SS16 4BG.
Tel: 0268 288434

Cheques/Postal Orders payable to Global Software
Please add 75p p&p per item for UK customers only
Europe add £2.00 per item. Other add £3.00 per item. All items subject to availability. All prices subject to change without prior notice. Please allow cheques to clear

Confessions of an Apprentice Amiga User

It was true of all of us... We all had to start somewhere. Nervously or with prejudices, we began to explore the Amiga when we were at the beginner stage. Alan C. Cranleigh takes a lighthearted look back at the fears and woes of his apprentice days. It is a tale that may yet have a happy ending with success and romance...

March 13th, 1987

Committed a heinous crime today. Walking along my local high street, I happened upon a branch of WH Smith and, in a moment of madness, I wandered over to the computer magazines. NEW SENSATION screamed a headline. Something called 16-bit is, apparently, about to storm the UK. The name of the amazing machine? The Atari ST. Oh, there's something coming called a Commodore Amiga too, but it doesn't have much to say about that.

I want an ST.

September 29th, 1987

Birthday! Any large boxes? Any ST? No.

Roll on Christmas...

December 25th, 1987

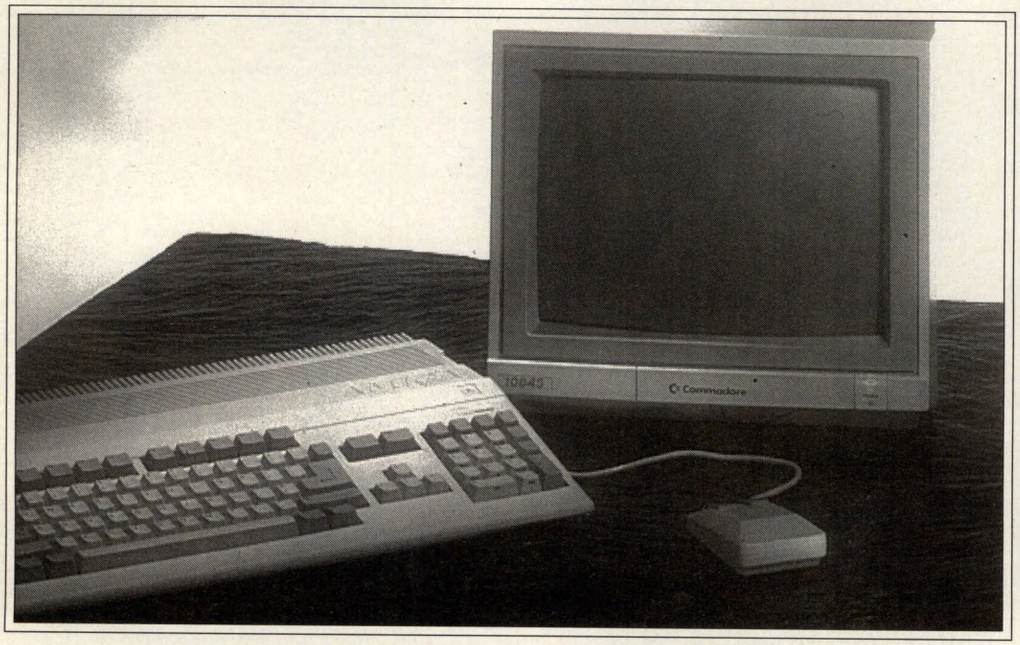
Hooray! An ST all of my very own! A chance to leave my Amstrad CPC in its box for evermore and graduate to the world of 16-bit home computing. Joy.

December 26th, 1987

Just going over to my friend's house. He got a Commodore Amiga for Christmas. What a mug. Can't wait to see how awful it is.

December 27th, 1987

I want an Amiga.



December 25th, 1989

Hooray! An Amiga! AT LAST! No more bumblebees when I click a mouse button, no more blocky, 16-colour graphics. The Amiga is sitting there looking new, proud to be inanimate and very, very capable. Now, how does it work? I keep getting this hitch-hiker holding a disk and asking for the Workbench, whatever that is. The nearest I can do is my Mum's old dressing table. I've never had a computer which is choosy about its resting place before (apart from my Spectrum, which melted on top of the radiator...).

Despite this lack of communication, games still work all right. You don't even have to type LOAD, it just sucks the disk in and Robert's your mother's brother. And the graphics and sound are simply stunning. I suppose I'll discover a way to make use of the keyboard sometime soon.

December 26th, 1989

I'm pig sick of disk swapping already. Almost every time I get going in a game the computer asks for another disk to be inserted into DF0. After a wander through the manual I discovered that DF0 is the official name for the disk drive - I suppose I should have guessed that. I must get a second disk drive soon. Not only that, but some of the games appearing now need more than 512K of memory! Disgusting. Look what they managed to squeeze into 48K on the Spectrum and the Ami has over ten times as much memory. Programmers are getting lazy.

What happened to the good old days? (Were there any?)

January 13th, 1990

Progress! I think I've found out what this Workbench thing is. I loaded Sim City and thought that it had gone wrong; the screen turned blue and these disk icons appeared. I know that they are disk icons

because they actually LOOK like disks. There I was thinking that computers didn't work without lots of complicated commands like C:> which make no sense.

And the Amiga has taken a whole new turn of interest for me now. There's lots of commands that appear at the top of the screen when you press the right mouse button. Initialize sounds interesting.

January 14th, 1990. 3am

Gordon bleeding Bennett. I've just killed ten million people at the press of a button. Initialize WAS interesting. It turned my Sim City into a blank disk - or it would have done, had I not pulled the plug out of the wall - and now I've read the manual from back to front, twice, trying to work out a way to rescue it. Worse, the Amiga seems to have developed a nasty sulky attitude. Since I stopped it from killing the whole disk, it now says "Structure Corrupt. Use Disk Doctor to rectify" and stubbornly refuses to load even Sim Suburbs. Sniff.

There's clearly something wrong with the computer. It's going back to the shop tomorrow.

January 15th, 1990

Okay, perhaps it was the disk that was faulty. There was no need for the dealer to explain it so slowly and patronisingly in front of a shopful of spotty twerps boasting about their Pascal programming prowess, was there? He was awfully nice though, I thought. He gave me a new disk. I asked him if he could save the population I'd built as well, but he only said "Rome wasn't built in a day" and something else. The something else was under his breath so I didn't quite catch it, but as I'd done quite well from the encounter, I left.

Someone got hold of my credit card in the shop and paid for a memory expansion (with clock, I hasten to add) and an external disk drive and put the card back in my pocket. NOW I have an Amiga to be proud of. Rather, soon I will, once I've got these bits plugged in. Oh, I also found a word processor in the bargain bin. It's called Transcript. About time I did something serious.

January 16th, 1990

Transcript is brill. It actually makes my computer look like an Amstrad PCW8256, which is not something I am altogether proud of. Only trouble is, I think I may have to take the memory board back to the shop. I plugged it into the disk drive (it has an expansion bus on it, just like the Spectrum's!) but no more memory. I had to bend a pin or two to make the connections but that never hurt my Sinclair Interface 2.

January 17th, 1990

Oh, it plugs in UNDERNEATH. I see.

What a silly idea.

February 8th, 1990

Getting the hang of this serious bit. I can use Transcript and Initialize two (count 'em, two!) disks at once! I'm not sure how useful this will turn out to be at the moment (or how many times you should Initialize the same blank disk).

31st December 1991

Well, I've been with my Amigai for two years now. I've had fun. More Lemmings than I care to count have died in its silicon innards. It now rests proudly in a big metal box (getting it out of the plastic one and in there is another, long and painful, story). It still only has 1Mb; I've no need to install more. It's not perfect. Occasionally it suffers from headaches. Sometimes it won't get out of bed at all.

And I still haven't got up the courage, after eighteen months, to ask the dealer to set the internal clock.

But I love my Ami.

And I like to think she loves me, too.

HARD COPY

SIMPLY DOS

by Kris Jamsa
(Osborne McGraw-Hill £11.95/$14.95)

As the price of MDOS falls like a stone, Daphne Moss finds a guide that makes an obscure operating system clear

Once upon a time there was a PC user, whose name, let's say, was Inthedark. Every day Inthedark sat at the screen and input lots of figures and words to a computer. Inthedark knew that the program used was called DOS, but what DOS did was a mystery to the poor operator because the figures and words were those that someone else had provided and the few actions that Inthedark took were ones that had been taught without explanation of their background.

Then one day Inthedark happened upon a book called 'Simply DOS' written by Kris Jamsa and, after reading it, suddenly everything about the figures and the words became clear. Not only that, but Inthedark found that the PC was not just a screen and a keyboard but a very useful artefact that could be used to make graphs and charts; that if things were in the wrong place they could be moved around or altered or added to; lists could be entered, renamed and copied; files could be manipulated. In fact, the PC was a brilliant tool that had innumerable uses that Inthedark had never before suspected.

After that there was no holding the once compliant and ignorant Inthedark and, after a few months, there was somebody else at that same screen inputting figures and words that were given to them by the new head of the department. Who, to everyone's astonishment, had changed his name from Inthedark to Seenthelight

Now I'm not saying that everyone who reads this book will suddenly become managerial material or that their status will automatically be upgraded but if you are, or know anyone, like Inthedark may I recommend 'Simply DOS' for it is just about the clearest, most easily understandable book on the subject that I have come across in many a long year.

From the very first page with its works and graphics complementing each other you are 'walked through' DOS step by step. At the end of each chapter there is a Keys To Success which summarises the various terms used.

'Simply DOS' is aimed, primarily, at the beginner who is trying to figure out his/her IBM PC or compatible, but it could be of use to anyone who has never tried to experiment with the manifold capabilities of DOS.

More and more small to medium-sized companies are becoming computerised which often means older employees having to learn how to come to terms with new technology. Getting to know the difference between hardware and software, starting your computer and typing in the first DOS commands may seem old hat to old hands but to new users they are often a worrying experience. Particularly if they have never before used a PC.

Familiarity, it is said, breeds contempt, it can also bring confidence and confidence in using DOS – both MS and PC – is what this book will give.

I tried it on a friend who, although a regular user of a well-known accounting package, knew little of the potential of MS-DOS which ran it. He was a *real* 'Inthedark', content just to use the accounts program and nothing else, but after one read-through, with hands-on practice, he began to understand how DOS works. Now he has even been able to successfully install a word processing program; which, given his previous unadventurous and slightly anxious approach to his PC is progress indeed.

'Simply DOS' is simply – great.

Lifting the Backup

£22 for 150 Meg of storage? Mike Nelson test drives two products, one cheap and the other not so cheap, which can give you that secure feeling about your valuable data.

For serious users, owning a hard disk drive is a necessity these days, and along with the increased flexibility and storage goes the commitment to regular and comprehensive backups. Most people learn about backups the hard way when the drive goes down taking their life's work on a one way ride to planet oblivion. Why is this the case? Everyone starts out with grand intentions about saving data files onto neatly organised (and labelled!) floppy disks, but when the crunch comes, and you have a reasonable amount of stuff, be it graphics files, text or sound, the hassle involved is pretty daunting. The speed of using floppies on large amounts of data is enough to put you off making backups and that is a dangerous situation. One thing is for certain: one day you WILL require a backup for whatever reason so you have to be disciplined and organised. AmigaDOS is reasonably clever, but does require a bit of help now and then, and this is where Ami-Back comes into the picture.

Tape Streamer

We will describe the software element later in this review, but Ami-Back is at its most impressive when combined with a tape streamer, and Omega Projects, suppliers of really useful Amiga add-ons are specialists in this area. I used their badged streamer with my Commodore A2091 hard drive controller fitted internally to my A2000. From a hardware compatibility point of view, this all worked really nicely under AmigaDOS 2.04 and with a GVP 68030 card.

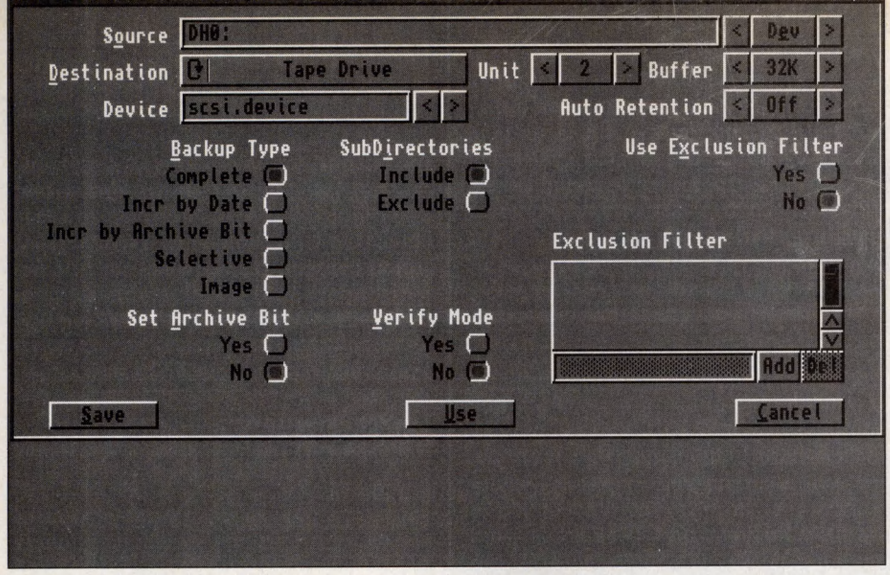
Actually connecting the streamer is not a procedure for the uncoordinated as you have to remove the hard drive card and disconnect the ribbon cable from between the drive itself and the PCB, substituting a "daisy chain" cable which goes to the SCSI streamer, itself located in the 5 1/4" drive bay. The streamer is powered by one of the spare internal cables and connecting this can be trickier than strangling a sack of eels, but Omega Projects have an excellent technical support line to assist you with any problems. I also tried to test the streamer with Gasteiner's ALF 3 drive interface, but there is simply not enough room between the drive and controller to house the cables, but I'm sure there's a way around the problem, even if you have to use the external SCSI connector.

The beauty about SCSI-based systems like the Amiga is that everything should be standard, so I would not expect there to be any problems connecting other drives into the system and the software is sufficiently flexible to cater for most users' specific configurations however weird they may be.

Once located in the Amiga, all that is required is a tape, but naturally something a little more sophisticated than an old C90 with some unwanted Kylie Minogue is the order of the day. The tapes are fairly pricey, but hold a pile of information and are a bit quicker than the old C64 cassette. To give you an idea of speed, a 40Mb backup with verification of the data took around 20 minutes.

A tape streamer on its own isn't a lot of use as there's precious little AmigaDOS support for them, although some of the 2.0 utilities seem to have streamer options. However, I used Ami-Back, imported from the United States by Omega Projects and this drove the streamer via the A2091 SCSI.

> *"All that is required is a tape, but naturally something a little more sophisticated than an old C90 with some unwanted Kylie Minogue is he order of the day."*



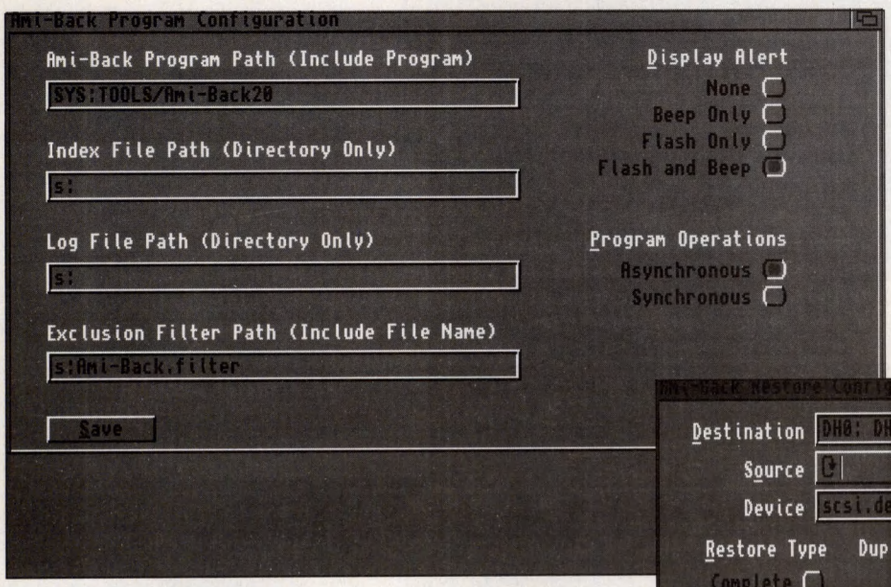
Burden

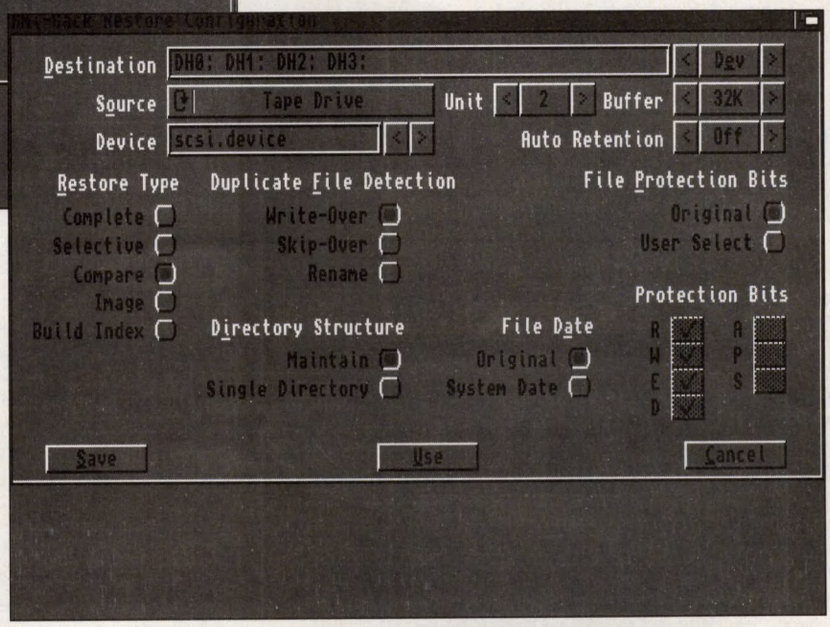
Doing Backups

As you can see from the screen shots, the choices are pretty bemusing at first, but the best place to kick off is with the source device. One of the advantages of Ami-Back is that it has been written with minimal user intervention in mind, and this is a real strength going back to the negative things I said earlier about making backups. You simply select what you want to back up from the list of devices and in its simplest form, that is all you need for a complete backup. I'll return to the options for selective backups, but for now the destination device warrants explanation.

Ami-Back looks through the list of available devices and a 2.0 cycling gadget is used for you to select the appropriate destination for your data. The requester changes with each type of device so the controlling parameters are totally at your mercy. When using the tape streamer, Ami-Back needs to know which device driver to use (scsi.device in the case of the A2091) and also which device on the chain to address as the streamer. This is all dependent on your exact hardware configuration and Omega Projects will advise you on how to avoid clashes between different hard drives or other SCSI devices located on one controller. I didn't have any problems at all with this part of the proceedings, despite never having used a tape streamer before.

Other useful controls are the RAM buffer used during the backups, and this may be anywhere between 32Kb and 4 Mb, depending on the memory available, and naturally the bigger the better as far as speed is concerned. By the way, "Auto retention" is a spelling error and should read "Auto retension" and this procedure is recommended for new or long-unused tapes. ▶



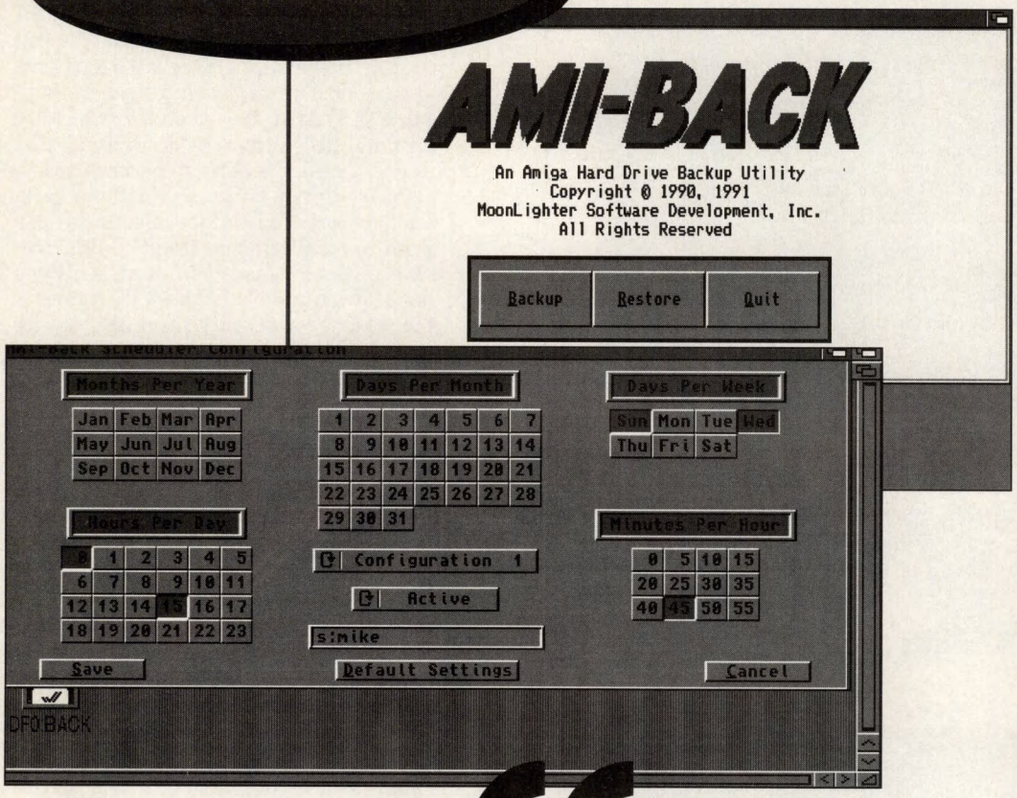


Ami-Back Software

This comes on a single disk with various versions, depending on whether you have upgraded to 2.0 or are still working with 1.3. My first impulse was to be very impressed by the overall quality of the product and it looks very nice with its 3D gadgets and intelligent user interface. Looking good is one thing, but did it actually do its job? The answer is an overwhelming "Yes"; I haven't come across a backup system which is so easy to use, yet completely flexible in what it can do. It's hard to imagine any more features which could be incorporated and although there is no ARexx support, Ami-Back is so well endowed with features, it's probably not necessary anyway!

The front end is a simple three choice screen and the options are controlled via a series of pull-down menus. Any changes you make to the program's configuration are saved (usually to the S: directory) for your convenience. Before making a backup, you need to call up the appropriate configuration screen.

TEST DRIVE



> *"The beauty of Ami-Back being that it's as simple or complex as you want it to be."*

Making huge backups every hour is a pretty inefficient way of doing things as you spend more time watching the LED's flash and whirr than you do actually computing anything. This is OK once in a while to justify having 18 hour coffee breaks as the machine is tied up on backup patrol, but for everyday use you need to be selective about what is included. There are various ways of getting Ami-Back to miss out files already backed up. There is a good case for doing one massive backup so all your programs are easily restorable, and thereafter just make copies of your data files. Ami-Back can look at the Archive bit in the file header to see if has been altered and only include new or updated files. Another way of doing things is to only include files created or modified after a certain date as this is also incorporated into the header information.

> *There is a good case for doing one massive backup so all your programs are easily restorable.*

Ami-Back is totally flexible in that you can specify a list of exclusion filters so you could program it using standard AmigaDOS wildcards only to backup files created after July 2nd beginning with the string "*AUI*" and missing out all the ".info" files. (To do this you would really need the new 2.0 NOT operator for wildcards so you tell the system not to exclude certain strings rather than specifically including them. Aren't double negatives fun?).

Restoration of the data

When the crunch comes, you need to rely on Ami-Back for maintaining the data's integrity, and getting it back under the watchful eyes of AmigaDOS. While a lot of the "what actually got backed up from where" information is stored in index files, there are a number of options for selectively restoring data, and you can also specify where the restore takes place, perhaps on a different drive to the source. Being completely and utterly paranoid when it comes to writing over things, I am pleased to say that Ami-Back satisfies my various neuroses when it comes to doing unnecessary overwriting. You have full control over the process, and Ami-Back will only replace files with identical names if the appropriate option is selected.

Other options include re-building the index files so you can still do selective restores if you lost the original index and also a handy "image" mode. This pays no attention to the format of the data, allowing you to use Ami-Back on non-AmigaDOS partitions like MS-DOS or AMAX II, although selective restoration isn't possible.

Ami-Scheduler

The ultimate in luxury backups has to be the automatic scheduler of Ami-Back. This allows you to program specific times (a bit like a video only more sophisticated) and dates to fire the backup software. For instance, you can ask Ami-Back to do its stuff at 5:30 pm every third Friday between the months of June and September. Network operators will certainly appreciate this kind of automated control. All you do is set the times you want and place a small program in the startup-sequence to look out for the correct time and date, and away it goes providing the system clock is accurate.

Conclusion

Spending £50 on Ami-Back could be one of the best purchases you ever make, as it is without doubt an excellent product which seems stable despite my best efforts to crash it. It is very fast (given my '030 based Amiga), and easy to use; the beauty of Ami-Back being that it's as simple or complex as you want it to be - even the most inexperienced user can schedule complete backups if the weird and wonderful world of AmigaDOS wildcards proves too weird for use.

The tape streamer is another story as it costs over £500 - nearly double the price of another hard drive! Should you buy a streamer or a drive? That all depends on what you do with your Amiga as there are certain advantages to tapes like they hold a phenomenal amount of information and can be sent fairly safely through the post. Restoring to other machines is therefore a good reason to get a streamer. If you generate lots of data files, whether they're animations, music, text or programming code, you have to back them up and the Omega Streamer is a most flexible, convenient way of going about it. Thoroughly recommended.

Contact: Omega Projects, 14, Derwent Close, Culcheth, Warrington, Cheshire WA3 5DY. (0925) 763946.
Prices: Ami-Back £49.95; 150/250 Mb £529.95 (internal) or £629.95 (external with case & PSU), both include all cables and Ami-Back; Tapes 150 Mb £22.

Scrolling, just Scrolling, by the light of the . . .

Paul Overaa takes a look at an 'almost Intuition compatible' copper-list poking trick that will move C programmers into interesting if somewhat risky territory...

I have got to tell you at the outset that I am on dodgy ground this month. Why? It's because I am going to deal with one of those 'not strictly legal' grey areas that nice programmers don't mention. The subject is the scrolling of Intuition screens from within the Intuition programming environment.

I have, incidentally, deliberately chosen the subject because it is something which does not seem, as far as I can tell, to have been covered before either in Amiga magazines or books. Cynics will tell you that the reason is because such things should not be done in the first place. I disagree - experiments such as these are, at the very least, a good way to learn. I also think that if more exposure were given to the various tricks which programmers use... we'd all learn an awful lot more about the Amiga. Let's face it if we wait for Commodore themselves to let us in on the Amiga's darkest corners we will wait forever !

Anyway, back to the subject at hand. Vertical playfield scrolling, as most Amiga hackers, demo writers, and programmers know is relatively straightforward. You just arrange for the display's bitplane pointers to be increased (or decreased) by an amount which corresponds to the pixel-width of the screen. If you do this during the vertical blanking intervals then the result is a flicker-free smooth scroll.

With a full screen display there's a minor snag - as you increase (or decrease) the bitplane pointers you bring new memory into the screen display area. The result, in most cases, is that you get rubbish displayed on the screen as the scroll proceeds. The secret is of course to set up an oversized display-memory area so that you only scroll within the bounds of valid graphics data.

This subject domain, which leads into the realms of do-it-yourself copper lists and so forth, is quite well documented even though it may not be particularly easy to get to grips with on first reading. For detailed explanations a good place to start, incidentally, is the Addison Wesley Amiga Hardware manual.

The situation on which I want to concentrate is a little different from the norm because it concerns the manipulation of an existing display and not the creation of a new one: Let's imagine that we're working within an Intuition environment, ie we have in use screens, windows, menus etc.

> *"Vertical playfield scrolling, as most Amiga hackers, demo writers, and programmers know is relatively straightforward"*

In opening a screen Intuition will have done a lot of work for us. Amongst its many jobs it will have built a View structure together with the copper list necessary to describe the display. It may even have set up a BitMap and allocated the necessary bit-plane memory (if we have chosen not to supply our own). Under these conditions we don't need to create our own copper lists... we need to find out how to dynamically modify those which Intuition has created.

How do we go about it? For experimental purposes it's a fairly easy job to dump and disassemble a particular copper list. When you do that it is then possible to see the instructions which jam the bitplane pointers into the appropriate hardware registers.

That gives us a bit of insight on how to tackle the problem from within a running program. All that's necessary, once Intuition has prepared its display list, is a bit of copper list searching: Firstly, we'll need to get the address of the View structure. Secondly, we use a short loop to locate the instructions which jam the bitplane pointers into the hardware registers. Thirdly, we replace the original bitplane pointer values with some modified values which we've calculated. This, in case you've wondered, is what is meant by that delightful expression... 'poking' a copper list.

The copper instruction to be found is the first of a series which put data into the bitplane pointer registers. It looks like this...

```
move   register      data-value

       00e0      some 16 bit data value

        ^                 ^
        |                 |
  instruction     first of the values
  to be found      to be 'modified'
```

All copper instructions consist of two 16 bit words, so all we need to find such an instruction is a loop which can skip through the copper list.

This sort of beloved hacker's loop, given an appropriate View pointer, will do the trick...

```
global_view_p=(struct View
*)ViewAddress();
global_copperlist_p=global_view_p-
>LOFCprList->start;

while((*global_copperlist_p)!=0x00e0)
{global_copperlist_p+=2;}
global_copperlist_p++;/* move to second
word in that first 0x00e0 instruction */
```

Don't worry if it all seems like magic... the code will make more sense when you examine it in the context of the demo. The important thing is the effect - this loop enables us to find out where in the copper list Intuition has placed those bitplane address values. Knowing this makes the scrolling problem much easier to tackle...

The Scroll Routine

Now that we know which copper instructions need to be modified the vertical scroll routine becomes pretty straightforward. Here's some pseudo-code which shows what's going on...

```
scroll:

INITIALIZE COPY OF BIT PLANE POINTERS

FOR EACH SCREEN LINE
make a copy of the copper list pointer

wait till vertical blanking interval then...

disable() (safety precaution whilst playing with copper list)

FOR EACH PLANE
calculate new bitplane address

split address into high and low parts

poke high and low values into copper list

increment copper list pointer for next plane
NEXT PLANE

enable()

include a time delay to 'slow things down' to required speed

NEXT SCREEN LINE

return
```

What does such a routine look like in C? Well, my ScrollUpwards() routine, which is one of the routines you'll find in the demo source code, looks like this...

```
/                                                                    *
=====================================================================
*/

void ScrollUpwards(void)

{
UWORD low, high, *copperlist_copy_p;
 WORD j, k;

for                                  (j=0;j<SCREENPLANES;j++)
{bitplanes_copy[j]=(ULONG)bitmap.Planes[j];}
    for(k=0;k<SCROLLHEIGHT;k++)
  {

  copperlist_copy_p=global_copperlist_p;

  WaitBOVP(global_view_p);

  Disable();

  for (j=0;j<SCREENPLANES;j++)

   {
     bitplanes_copy[j]+=80;
       low=((ULONG)bitplanes_copy[j])&0xFFFF;
     high=((ULONG)bitplanes_copy[j])>>16;

    *copperlist_copy_p=high;copperlist_copy_p+=2; /* bump by two
words */
          *copperlist_copy_p=low; copperlist_copy_p+=2; /* ditto */
}
    Enable();

  set_timer(0, 20000);

 }
 }

/                                                                    *
=====================================================================
*/
```

In isolation this routine shouldn't be too hard to follow. In practice, you'll need a reasonable understanding of the whole demo-source in order to see where the various code sections fit in. That means a few words about the overall source-code layout are in order...

Overall Layout of the Demo

Although the scroll routines themselves are quite compact the final demo program, if you are new to Intuition, is relatively involved. This isn't me being b***** minded, it is just that it's difficult to provide a working demo without including all the usual Intuition related stuff. To help you plough through the source here's a sketch of the overall layout...

GENERAL LAYOUT OF THE SCROLL DEMO PROGRAM

- Includes
- Function Prototypes
- Defines
- Global variables
- Image Data Colour Table
- Menu Data
- Text Message Data
- Screen and Window Data
- Resource Allocation Header

```
            -
            |
          | Set up a few 'coppered' colours          |                    |
Hunt for bitplane data
            |
            | Clear screen and display image data/text
            |
            | Set menu strip in action          Main Code  —|
            | Intuition Message Loop which...
            |          |      1:  monitors menu opperations
            |         and performs scroll routines
            |         when start is selected.
            |          |      2:  exits message loop when
user selects            |         the quit option.
            |
            | Exit from the Program
            |          -
            Scroll Routines

   Timer Routine

   Resource Allocation/Deallocation Code
```

My list-orientated style of resource allocation and deallocation will doubtless be familiar from earlier *AUI* articles. The statements which produce the two copper shaded screen colours and perform the copper list search will not be familiar - here is the code fragment which does all the hard work...

```
c=(struct                                        UCopList
*)AllocMem(12L,MEMF_CHIP | MEMF_PUBLIC | MEMF_CLEAR);
 CINIT(c,((SCREENHEIGHT/2)*3)+1);

for (j=0;j<SCREENHEIGHT/2;j++)

  {  (j/15) % 2 ? BlueColour— : BlueColour++;

     (j/4) % 2 ? GreenColour— : GreenColour++;

     CWAIT(c,j,0L); CMOVE(c,custom.color[0],BlueColour);

  CMOVE(c,custom.color[2],((GreenColour+11)<<4)+GreenColour+11
     +((GreenColour+11)<<8));

  }

CEND(c); global_viewport_p->UCopIns=c;

MakeScreen(global_screen_p); RethinkDisplay();

global_view_p=(struct View *)ViewAddress();
 global_copperlist_p=global_view_p->LOFCprList->start;

while((*global_copperlist_p)!=0x00e0) {global_copperlist_p+=2;}
 global_copperlist_p++; /* move to second word in that first 0x00e0
instruction */
```

Once the display has been set up all the program has to do is monitor the window's IDCMP port for messages about any menu events which have occured. When the user selects a menu option this message loop detects it, and then performs the appropriate program actions...

```
   global_exit_flag=FALSE;

   g_IDCMP_mask=(1<<global_window_p->UserPort->mp_SigBit);

   do {Wait(g_IDCMP_mask); message=GetMsg(global_window_p-
>UserPort);

      do{
        class=message->Class; code=message->Code;

        ReplyMsg(message);

        switch  (class) {
                  case MENUPICK: item_number=ITEMNUM(code);
break;

                  default: break;
                 }

       message=GetMsg(global_window_p->UserPort);

       }while(message);

      switch(item_number)
         {

       case 0:
           ClearMenuStrip(global_window_p, &menu1);
         ScrollUpwards(); ScrollDownwards();

       SetMenuStrip(global_window_p, &menu1);

       break;

       case 1: global_exit_flag=TRUE; break;
       default: break;                  }          }while(!global_exit_flag);

ClearMenuStrip(global_window_p, &menu1);

end_block(); /* Logical end of the program */

}
```

To control the scroll speed I've opted for using the timer device and you'll find the timer device initialisation code in the allocation/deallocation sections of the cover disk source code. As a last point it's worth noting that rather than making direct timer I/O calls I have chosen to use this generalized set_timer() routine...

```
void set_timer(ULONG seconds, ULONG microseconds)

{

if(seconds==0 && microseconds<2) {return;}

else {
       timer_request_p->tr_node.io_Command=TR_ADDREQUEST;

      timer_request_p->tr_time.tv_secs=seconds;

      timer_request_p->tr_time.tv_micro=microseconds;

      DoIO(timer_request_p);

    }

}
```

The program has been written using ANSI C but translation to K&R style (necessary if you were using NorthC or some other compiler which requires K&R type function conventions) would be quite straightforward. You'll find a runable version of the demo program, plus the complete source code, on the cover disk.... have fun!

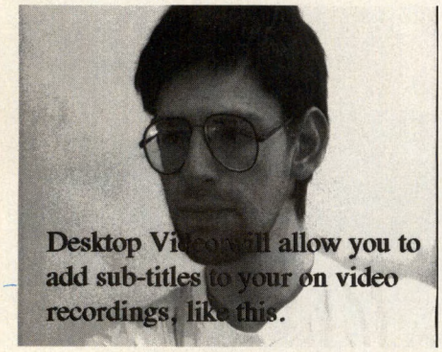
MENTOR

The A To Z

The second part in the series that everyone has been waiting for - everything you didn't know you didn't know about the computer you thought you knew. John Kennedy and an assembled but very motley crew of Amiga experts (they say!) offer you the lowdown on - and the highlife version of - the key words, terms, ideas and even their opinions on all the wondrous aspects of the Amiga universe. You could only read it in ***AUI****!*

Desktop Video

Or DTV to use the TLA (Three Letter Abbreviation), concerns the use of the Amiga in the exciting world of video-recorders, time base correctors and genlocking. At its most trivial level, DTV is all about using the Amiga to put captions on the camcorder exploits of the family in Blackpool. More serious users can produce results which rival professional studios. Unlike cine film, editing video tape is an expensive and high-tech experience and the Amiga is one of the few micros that can hack it. DTV is becoming much more affordable as the cost of video equipment in general falls and we all are familiarised with the idea of its accessibility. It is also now credibly thought of as the Amiga's next major field for success, especially with the growth of multimedia and, of course, the now legendary Video Toaster.



Desktop Video will allow you to add sub-titles to your on video recordings, like this.

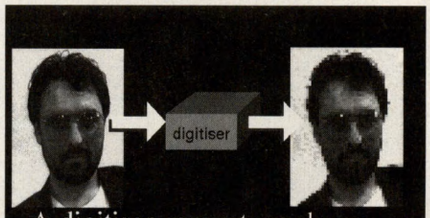
"They are square and semi-rigid, so why do we call them floppy disks?"

Device

In Amiga-speak, a device is a specially defined machine (even a theoretical one) for input or output. Each device - be it screen, keyboard, printer or disk-drive - has its own name which usually ends with a colon. For example, PRT: (printer) SER: (serial port) df0: (the internal floppy disk).

Digitiser

A generic term which usually refers to either a video digitiser or a sound digitiser (or sampler). As computers all work in BITs and BYTEs, they like their data to be in digital form. Unfortunately, the real world is an analogue (constantly changing) experience. To convert real-world sights and sounds into computer-readable form, the signals must be DIGITISED. The hardware that does the conversion is a digitiser. The speed at which the conversion process takes place is the SAMPLING RATE. The first digitiser to make an impact - and it was a big one - on the Amiga scene was NewTek's Digiview.



A digitiser converts analogue information from the real world into digital information, suitable for computers.

Directory

A floppy disk can store many different FILEs. To provide some semblance of organisation, the Amiga uses a directory-based filing system. For example, if a floppy disk has a mixture of sound samples and pictures, it would make sense to create two directories called 'SOUND' and 'PICTURES' and put the relevant files into the correct directory. A sub-directory is a directory within a directory. Tip: sorting out your floppies into directories makes them work faster.

Disk

They are square and semi-rigid, so why do we call them floppy disks? Good question. The answer is buried in the mists of time, but for a laugh nip into any IBM dealer and ask them to show you a five and a quarter inch floppy disk. The piece of history they will produce from under the counter will possibly help. If you are some sort of masochist, it is possible to connect a five and quarter inch disk drive to an Amiga.

Drive

Verb: to support, as in "Does the Amiga drive this printer?" to which the answer will usually be "Yes, but it will take you a fortnight to get italics mode".

Noun: the shortened form of either floppy disk drive, hard disk drive or CD-ROM drive: the machine needed to read and write the floppy, hard or compact disks.

DMA

Stands for Direct Memory Access. If a peripheral (for example a hard disk drive) uses DMA it can get and put data into the computer's memory without the intervention of the main processor. Obviously this speeds things up, and the Amiga is such a high-tech machine that it supports DMA as standard. The sound and graphics capabilities of the Amiga rely heavily on DMA.

Drag bar

A good place to meet Danny La Rue. Also the part of a WINDOW which you can

of the Amiga *Part 2*

D to S

click on and use to re-position the window anywhere on the screen. Sometimes called the Title bar. (Have a drink, my lord?)

Drawer

A Drawer is the iconic representation of a DIRECTORY. By dragging ICONs into a drawer, you are actually placing files into directories and sub-directories.

Editor

The Editor is the person who takes all the best jokes out your copy. (Not if this is the best you can do! Ed.) An editor is any program which allows changes to be made to data. Like Editors, editors come in all shapes and sizes, from text editors to WIREFRAME object editors. (Editors come in only one size: Majestic! Ed.)

EHB

Extra halfbright. A special graphics mode which doubles the number of available colours from 32 to 64. The second bank of 32 are the same as the first, only half as bright.

Empty drawer

When you are sorting your programs into DIRECTORIES by copying their ICONS into DRAWERS, you need an empty drawer to start with. To get one, duplicate the empty drawer on your Workbench disk and then rename it. (Both 'duplicate' and 'rename' are options accessible from the PULL DOWN MENUS on the WORKBENCH.) From WORKBENCH version 2 (as supplied as standard with Amiga 3000s and 500Pluses), you can create an new drawer wherever you like with a menu option.

EPROM

A special type of ROM which can be programmed by the user (with a suit-able piece of HARDWARE) and retains all its data until erased by being ex-posed to Ultra-violet light. Normally used to prototype control software for PERIPHERALs, EPROM stands for 'Erasable Programmable Read Only Memory'. The standard Amiga ROM is 512K in size. User programmed EPROMS are not common on the Amiga.

"Like Editors, editors come in all shapes and sizes, from text editors to WIREFRAME object editors."

Fast RAM

The extra memory added to a Amiga is usually Fast RAM. It's fast because unlike CHIP RAM, the central processor has complete access and is never locked out. Amiga 500s, 1500s and 2000s can have up to 8Mb of normal Fast RAM. CHIP RAM is usually more useful, because graphics and sounds must be stored there. The new series of Amigas support up to 2Mb of CHIP RAM which is a very nice amount to have.

File

A collection of information, packaged into a single unit and stored on disk or in memory. A file may be a list of names and addresses or it may be a program. When you are moving it around, it's all just data to the computer: it's what you do with it that makes all the difference.

Firmware

Programs which are stored on EPROM are usually referred to as being firmware. It's just making use of the '-ware' suffix in the same way that, until recently, new Workbench upgrades have been called 'vapourware'.

Font

A font is a collection of letters, numbers and punctuation marks all in one particular style and given an important-sounding name such as Times or Helvetica. Fonts come in two types: Scalable and Bitmapped. Bitmap fonts are the norm, but a scalable font can be resized without becoming blockie or jaggie.

Format

Before you can make use of a disk (floppy or hard) it must be formatted. The formating procedure organises an otherwise randomly scattered disk into a set of TRACKS and SECTORS. It's the best way known to man, woman or beast to destroy the contents of a disk, and therefore should not be performed on your Lemmings disk.

Fred Fish

If it's Public Domain software you're after, Fred Fish is your man. Once called 'Fried' by a self-styled Amiga Expert now writing for another magazine, Fred started collecting and distributing software on 'Fish Disks'. A nice fellow. With Jay Miner, R.J. Mical, Tim Jennison, one of the group of geniuses who have benefited the world of the Amiga user marvellously.

Gadgets

The technically correct definition is 'software switches'. To you and me, they're the bits you click on to change colours, select options and so on. In these enlightened days, gadgets are becoming more flexible with 'Radio Buttons' and other exciting variations appearing. ▶

MENTOR

A to Z
CONTINUED

Gary

A friend of mine who uses Grecian 2000 and thinks no-one notices. Gary is also the custom chip which arbitrates the address and data buses, and generally stops the other custom chips from getting their knickers in a twist with the 68000.

Genlock

A piece of HARDWARE that can combine the Amiga's video output with the output of a video-recorder or camera. It works by actually changing the speed of the Amiga to synchronise with the speed of the external video-source. It's not wise to format disks, ray trace etc. whilst a genlock is connected.

Ghost

When an item from a MENU is unavailable, or a WINDOW is not in use, the text will 'ghosted'. It means it's turned a funny grey colour.

Guru

When a Guru Alert appears, the Amiga has gronked out, crashed, bombed, flopped over, given up, effed up etc etc. It's nature's way of telling you it's time for a nice cup of tea. Most guru alerts happen on unexpanded A500s, so buy a RAM expansion before blaming the computer. Kickstart 2 has so-called Recoverable Alerts, which are green instead of red, and exist only to raise your hopes for a second.

HAM

A TLA standing for Hold-And-Modify. In Amiga-lore, this is the graphics mode which St. Jay Miner almost removed at the last moment. Although normally the Amiga can display 32 colours (or 64 in EHB mode) by using HAM up to 4096 can be displayed on-screen at once. The trade off is between the extra colours and reduced horizontal resolution, although with a good digitised picture the results are totally awesome. HAM mode is a Good Thing, and still makes ST owners grind their teeth and PC owners check the price tag.

Hardware

The computer, mouse, disk drive and just about anything else that you can touch, drop or spill coffee over. Compare with SOFTWARE and FIRMWARE.

Icon

A pictorial representation of a file. Instead of having to manipulate files from the CLI, icons allow you to move them about with the mouse.

Interlace

The graphics mode which can induce a near-instant headache. By producing two different video-frames in quick succession, the Amiga can effectively double its vertical resolution to 512 lines (or 400 on NTSC). The drawback is the terrible flickering, which can be cured in four ways: (1) buy an Amiga 3000 and multisync monitor, (2) buy a flicker fixer and a multisync monitor, (3) buy a special long persistence monitor, (4) don't use interlaced mode. Of the four, the first option gives the best results. If you have the new chipset (ECS), you can try Productivity Mode which almost (but not quite) helps things.

"By producing two different video-frames in quick succession, the Amiga can effectively double its vertical resolution to 512 lines."

Intuition

The name given to the Amiga's WIMP-based OPERATING SYSTEM.

Tin Jennison

Founder of Newtek. One of the really bright (and nice) people who have made the Amiga what it is. Invented the Digiview digitiser and the don't-hold-your-breath-for-the-Pal-version marvel, the Video Toaster.

Library

Your first port of call when looking for computer books, as Public Libraries are infinitely cheaper than bookstores. To a programmer, a library is a collection of sub-routines (perhaps written by someone else) which make life a lot easier. For example, the Amiga's Graphics Library provides ready-to-use functions for line and point drawing, pattern filling and scrolling.

Menu

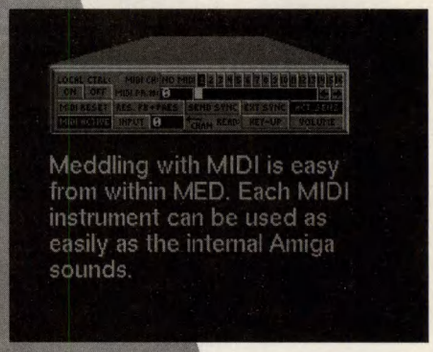
Pick an option, any option. When a menu appears (perhaps after being pulled-down by yourself with the right-hand mouse button) you are offered a choice. The menus on the WORKBENCH screen will allow you to format and copy disks, open drawers, empty the trash can and many other exciting pastimes.

R.J.Mical

Creator - under Jay Miner's management - of the original software that made the Lorraine, as the Amiga was then called - run. Another genius who went on to become the best and funniest raconteur of the Amiga story and to create the Lynx handheld game machine which uses Amiga-like technology.

MIDI

Musical Instrument Digital Interface. A standard to allow computers and synthesizers to talk together. It's a sort of souped up RS232, and to make use of it you need a MIDI Interface for your Amiga (available from all good shops, price about 10-30 pounds). For more info see this Issue's Special Supplement "The Art of Noise".



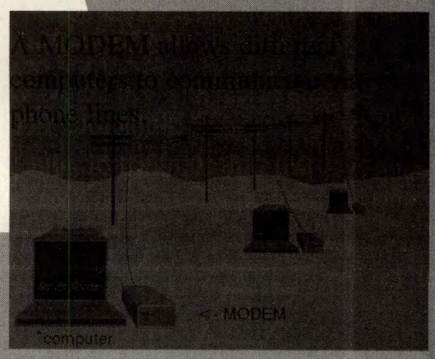
Meddling with MIDI is easy from within MED. Each MIDI instrument can be used as easily as the internal Amiga sounds.

Jay Miner

"The Father of the Amiga" is the man most responsible for its original appearance on the computer scene. He wanted to create a great games machine - he'd previously worked on the first consoles. Commodore bought the Amiga company out when they ran out of cash and turned the computer first, with the A1000, into a business style machine and then with the A500, right back into Jay Miner's original conception. The famous statement, "Amiga made it, Commodore screwed it." Which was embedded into the first operating system of the Amiga - without Commodore noticing - is attributed to him or R.J.Mical.

MODEM

The name comes from a contraction of Modulator/Demodulator. A MODEM is a black box which takes data from the SERIAL PORT and converts it into a from which can be transmitted down a telephone line. Oh, and it can do it the other way round too. Much more interesting are the Bulletin Boards you can access and the friends you can make by using one.



(And the insults you can have hurled at you!)

Modula2

The sequel to the programming language Pascal, brought to you by Niklaus Wirth. It still looks like Pascal.

Mouse

The mouse originated at the Xerox research labs in Palo Alto, where the machine which pioneered the use of WIMPS was created. The concept was happily plagiarised by Apple, and everyone else (including Commodore) within seconds.

Multisync

A registered trade mark, but widely used to describe monitors which can operate at several refresh rates. The higher rates are essential for flicker-free INTERLACED displays. Multiscan is a safer alternative.

Multitasking

Being able to walk and chew gum at the same time. An Amiga can have several projects running at once, each under the impression that it has a fully operational Amiga all to itself. Once you get used to multitasking (which you won't unless you get some extra memory and a floppy or hard drive) you'll wonder how you did without it. PC and Apple owners are unlikely to understand the feeling of freedom which multitasking produces.

NTSC

Never Twice the Same Colour. The 400-line American video standard, which almost - but not quite - works. In the UK and Europe we have the more advanced 512-line PAL system. In the U.S. they have the Video Toaster.

Operating system

The underlying SOFTWARE, on which a computer depends on. The Amiga's operating system is called INTUITION, and you know it best as the collection of WINDOWs and ICONs displayed on the WORKBENCH.

Overscan

Overscan mode will cause the Amiga display to cover the entire video-screen, with no borders. It's perfect for video work, although using it will reduce the number of SPRITEs available as the Amiga works overtime to support it. For an as yet unexplained reason, Workbench 2 will allow the standard Workbench display to extend into the Overscan regions. Overscan is what the Spectrum never did.

PAL

Phase Alternate Line - the video standard adopted by the Brits after they saw the bodge the U.S.A, made with NTSC. And they have the Video toaster and we don't! Who said there was justice in the world?

Parallel port

Sometimes also (confusingly) known as the printer port, the parallel port is where you connect peripherals which need to shunt data in and out in a hurry. Video digitisers and sound samplers use the Parallel port. It is called 'parallel' because the data is managed 8 BITs at a time. Most - but not all - printers make use of the parallel port, because it supports a standard called Centronics.

Pascal

One of the first 'structured' languages to become popular, Pascal was developed by Niklaus Wirth primarily as a teaching aid. Pascal programs don't use line numbers, but instead group lines of code together in functions. Learning Pascal is not difficult, and is a good transitional language between BASIC and C. There is an excellent Pascal compiler in the Public Domain, and HiSoft are presently launching a professional one.

Paste

The act of taking something from the CLIPBOARD and inserting it into whatever you are currently editing.

Paula

The custom chip which handles the sound capabilities of the Amiga. Also helps out with the floppy disk drive.

Peripheral

Any extra piece of HARDWARE you can add to your Amiga, either to make your life more bearable (a second disk drive for example) or more enjoyable (a hard disk drive).

Pink Floyd

A dinosaur rock-band from the 1960's, which some say never recovered from the split with Syd Barrett. The only thing in common with Amigas is the fact that I like both a lot.

Preferences

Among WORKBENCH DRAWERs is a one with a large question mark on it. Inside it are the preference programs, which allow you to customize your Workbench and also to choose the type of printer you want to use.

Productivity Mode

The new Amigas with the ECS (enhanced chip set) have several new graphics modes. Productivity mode will generate a non-interlaced 480 line display, or a 960 interlaced display. It's perfect for DTP work but has three drawbacks: (1) You need a multiscan monitor, (2) You can only have 4 colours and (3) it slows the Amiga down.

Project

In Amiga-speak, a project is an on-going piece of work. For example, a document saved from a Word Processor is a project, as is a picture saved from Deluxe Paint. The ICONs of both know exactly where they came from, and so clicking on them will also load and run the WP or Paint program that produced them.

RAM

The misleading term 'Random Access Memory' is the memory inside your Amiga which you use to store all your programs and data. It's misleading because practically all memory is 'random access'. The Amiga uses DRAM (dynamic RAM) which due to its construction is small and relatively inexpensive (unlike static RAM). You want as much RAM as possible.

ROM

Read Only Memory is just that - memory which cannot be written to, just read from. The information is 'burnt' into the ROM at the time of manufacture, and so is the perfect medium for OPERATING SYSTEMS and the like.

RS232

If there is a side to computers which my girlfriend finds most interesting, it's not RS232. RS232 is the accepted standard protocol for serial data transfer. All MODEMs and serial printers use RS232, or a close derivative.

Sampler

The nickname given to a sound DIGITISER. For more information on sampling see The Art of Noise Supplement in this issue.

Scanner

A scanner is a special type of video-digitiser which operates by looking at a the photograph slice by slice. A hand-held scanner must be pulled over the photo by the user, whereas a flat-bed scanner can scan an image placed on top of itself. Expensive colour scanners can provide some the highest quality digitised images possible.

Continued...

arena

CONTACT RICHARD OR LIZ ON 071 490 7161

spot ark

SWITCHABLE VOICE/ FAX LINE **TEL: 0983 551496** OPEN 10am – 7pm MON – SAT

ACCOUNTS
Arena Integrated Ac. * ... 99.64
Cashbook Combination .. 54.99
EasyLedgers ... 153.46
Home Accounts 2 * ... 39.95
Personal Finance Mgr ... 25.85
System 3 Integrated ... 39.95

BOOKS 40 Lines Stocked
68000 Asm Lan Prgrmg . 21.95
Assembly Lang Prgrmg .. 14.95
Amiga Basic In/Out ... 18.95
Amiga C Beginners ... 18.45
Amiga For Beginners ... 12.95
AmigaDOS 2 Companion 23.45
AmigaDOS Inside & Out . 18.45
CBM Devices; ROM M1 * 29.95
CBM Hardware Ref M1 ... 21.95
CBM Incs & Docs; ROM . 29.95
CBM Libraries; ROM * ... 29.95
CBM Style Guide * ... 21.95
Desktop Video Guide ... 18.45
Disk Drives In/Out ... 27.95
Imagine Companion * ... 24.95
Introduction To TeX ... 21.95
Kids And The Amiga ... 14.95
Mapping the Amiga ... 20.95
System Progrms Guide .. 32.95
Using ARexx Amiga * ... 32.45

CABLES 100 Lines Stocked
D25P-C36P 2M Printer ... 6.58
D25P-D25P 9W 2M Mod 11.28
D25P-D25P 25W 2M ... 13.16
D23S-D15P NEC MS 3D . 14.10
DIN5P-DIN5P MIDI ... 5.17
Null Modem Cable ... 12.22
Gender Changers ... 7.99
Fast File Transfer ... 35.72
Socket D23S & Hood ... 5.17
Switch Box D25S X 2 ... 19.74

COMPUTER AIDED DESIGN
Design 3D ... 59.22
Draw 4D Professional .. 229.83
Professional Draw 2 ... 89.77
X CAD 2000/3000 ... Query

DATABASE MANAGERS
Image Finder ... 49.82
InfoFile ... 46.06
Mailshot Plus ... 39.01
Prodata 1.2x ... 69.56
Superbase Personal ... 26.79
Superbase Personal 2 ... 59.69
Superbase Prof 4 * ... 189.88

DESKTOP PUBLISHING
AmigaTeX Typesetting .. 111.39
AmigaTeX Drivers (1) ... 52.64
Clip Art PD 15 Disks ... 29.61
GDType: Designer ... 32.90
GDType: Decor ... 32.90
GDType: Video ... 32.90
GDType: Publisher ... 32.90
Outline Fonts ... 99.64
PageSetter 2 ... 45.59
Pagestream 2.? ... 138.65
Pro Clips Str. Art ... 23.97
Prof Page 2.? 2MB ... 169.67
Saxon Publisher 2MB ... 199.75
Structured Clip Art ... 38.54

DUST COVERS Deluxe Buff
Amiga 500 Deluxe ... 7.99
Monitors 1084S/8833 ... 9.87

EDUCATION
Distant Suns 4 ... 59.69
Mega Maths A Level ... 24.44
Micro English (GCSE) ... 23.97
Micro French (GCSE) ... 23.97
Micro Maths (GCSE) ... 23.97
My Paint 2 ... 24.91
Primary Maths ... 24.44

EDITORS
CygnusEd Pro 2 ... 59.69

GRAPHICS
Animation Studio ... 79.90
Art Department Pro 2 ... 149.93
Deluxe Photolab ... 56.40
Deluxe Paint 3 ... 49.82
Deluxe Paint 4 ... 64.86
Deluxe Video 3 ... 69.56
Digi Paint 3 ... 54.05
FantaVision ... 35.72
Imagine 3D Modelling .. 169.67
Naksha Scanner ... 109.98
Pixmate ... 39.95
Real 3D 1.3 ... 119.85
Real 3D Turbo 2MB ... 329.94
Scene Generator ... 35.72
Scenery Animator * ... 69.56
Sculpt Animate 4D 2MB 337.23
Sharp Colour Scanner .. 599.72
Vista Pro 3MB ... 79.90

HARDWARE
IBM A500 Plus RAM ... 49.82
2.0 ECS ROM Chip * ... 34.78
2.0 ECS Denise Chip * ... 39.95
3.5" External Drive ... 59.69
3.5" Int A2000 Drive ... 59.69
512K A500 RAM/Clock ... 29.61
A590 20MB Hard Drive 286.23
A590 with 2MB RAM ... 349.68
Amiga Spares ... Phone
Amiga 500 Only ... 299.86
Amiga 500P Only ... 329.94
Amiga 500P CC Bundle 379.76
Amiga 1500/1 Drive ... 449.79
Amiga 1500/2 Drives ... 499.61
Amiga 1500 & S/W ... 579.98
Amiga 1500 Mon & S/W 829.55
Amiga 3000 16/40 ... 1999.85
Citizen 124D 24 Pin ... 189.88
Fatter Agnus ... 61.10
GVP 24 Bit Gfx Card * 1599.88
GVP 68030 22MH 1-13MB ... 539.56
GVP 80286/16MHz PC * 289.99
GVP A500 52MB 0-8MB 369.89
GVP A500 105MB 0-8MB ... 559.77
GVP A2000 SCSI 0-8MB 169.67
GVP A2000 52MB 0-8 .. 279.65
GVP A2000 105MB 0-8 ... 469.53
GVP A2000 2-8MB RAM 169.67
GVP XC SCSI Exp. Case 189.88
Naksha Mouse & Game .. 29.61
Quantum 52MB SCSI HD ... 199.75
RAM SIMM's For GVP's ... 34.78
SCSI HD Case & PSU ... 109.98
SupraRAM A500 1-8MB ... 139.59
SupraRAM A500 0.5-8MB ... 129.72
X Copy Professional ... 37.60

INTEGRATED PACKAGES
Appetizer ... 30.55
Graphics Starter Kit ... 56.40
Office By Gold Disk ... 89.77
The Works Platinum ... 69.56

MULTIMEDIA
AmigaVision (CBM) ... 95.88
Hyperbook ... 49.82

PROGRAMMING
AMOS Compiler ... 24.91
AMOS Creator ... 34.78
ARexx ... 33.84
C PD (5 Disks) ... 9.87
Devpac 2 Assembler ... 43.71
Devpac 3 Assembler * ... 59.69
GFA Basic Compiler ... 23.97
GFA Basic Interp. ... 39.95
Hisoft Bas. Compiler ... 57.81
Hisoft Pascal * ... 89.77
Lattice C 5.1 ... 159.80
Pascal PD ... 2.82

RIBBONS Wide Range
6 CBM MPS1230 ... 25.38
6 CBM MPS1500 ... 31.02
3 CBM MPS1500 Colour 36.66

SOUND Also see Hardware
Audiomaster 3 S/W ... 39.95
Bars & Pipes Pro ... 219.96
Deluxe Music ... 54.99
GVP D. Sound Studio * .. 59.69
MIDI Master Interface ... 29.61
MIDI Plug Interface ... 25.38
Music X Junior ... 66.27
Sonix 2 ... 49.82
Sound Enhancer * ... 34.95
SoundMaster Bundle ... 109.98
Sound Trap 3 Sampler ... 30.55
Stereo Master * ... 34.78

SPREADSHEETS
Advantage ... 69.56
Professional Calc * ... Query
Superplan ... 49.82

UTILITIES
Ami-Back SCSI Backup . 49.82
B.A.D. Optimiser ... 34.78
BBC Emulator ... 35.72
Byte 'N Back ... 19.74
CrossDOS Transfer ... 24.91
Directory Opus * ... 35.72
Doctor Ami ... 40.89
GB Route Planner ... 33.84
GB Route Plus ... 64.86
Mavis Beacon Typing ... 27.73
Personal Fonts Maker ... 49.82
Quarterback HD Backup . 39.95
Quarterback Tools ... 59.69
SaxonScript Prof. * ... 94.94

VIDEO Also see Hardware
Broadcast Titler ... 184.01
Digi View Gold 4 ... 109.98
Hitachi Camera/Lens ... 204.45
Home Titler ... 34.78
Rendale 8802 Genlock . 189.88
RocGen Genlock ... 99.82
Scala 500 * ... 79.90
ShowMaker Gold Disk * 229.83
Video Ease Titler ... 37.60
Video Outline Fonts * ... 59.80
Vidi Complete Soutn. ... 159.80
Vidi Take2 Animator * ... 89.77

WORDPROCESSORS
Excellence 2 ... 69.56
Final Copy Outlines * ... 79.90
Kindwords 2 ... 36.66
PenPal 1.3 ... 59.69
Personal Write * ... 29.61
Protext 5.5 ... 101.99
ProWrite 3.? ... 99.64
QuickWrite ... 39.95
Scribble Platinum ... 42.77
TransWrite ... 32.90
Wordperfect ... 189.88
Wordworth ... 87.89

* NEW, OR DOWN IN PRICE.
PLEASE CHECK AVAILABILITY
PLEASE SEND S.A.E. FOR CATALOGUE

Richard & Angela Howe: Applied Research Kernel (Dept AUI)
Corve Farmhouse, Corve Lane, Chale Green, nr. Ventnor, PO38 2LA, U.K.

POST & PACKING (on items averaging less than 1Kg)
UK £0. Software Special Delivery £3.29. Securicor £9.87
BFPO & CHANNEL ISLANDS £0. Special Delivery £3.29
EUROPE £5 1st item + £3 for each additional item.
WORLD £15 1st item + £9 for each additional item
CHEQUES London Sterling to A.R.K. please (may clear)
NORMAL DESPATCH stock 24 hours, from supplier 48 hours
EXPORT & BFPO Remove U.K. V.A.T (E/1.175) (not books)
V.A.T. Prices include U.K. V.A.T. Books are zero rated
PHONE Monday to Saturday 10am to 7.30pm
PRICES Are necessarily subject to change
MEMORY Assume 1MB RAM to load, unless stated.
Visitors are always welcome by appointment

We Must be Mad!

Due to massive bulk buying and low cost advertising we can offer you The Best Disks at most Competitive Prices

3.5" DSDD DISKS FROM 35p INC VAT + LABELS For Qty's of 100+

Qty's below 100 @38p each; 250+@34p each;500+@33p each.
ALL DISKS CERTIFIED 100% ERROR FREE

SONY 3.5" 38p
3.5" DSHD ..65p
5.25" DSDD.24p
5.25" DSHD 36p

100 Capacity Disk Box.....4.25	50 Capacity Disk Box 3.50
Mouse Pockets.....1.75	Mouse Mat.....2.25
Printer Stand 4.25	Amiga/Atari Dust cover....2.50
Posso Box.....15.95	3.5"/5.25" Cleaning Kit ...1.95

Amiga 512K RAM Expansion with clock 24.95
Amiga/Atari External Drive.....54.95

THIS MONTHS SPECIAL OFFER
200 3.5"DSDD Disks +2 x 100 Cap Boxes 74.95

Please add £3.35 p&p/next day £8.50. Cheques/POs to PLC COMPUTER SUPPLIES

PLC COMPUTER SUPPLIES (Dept. AUI)
11 Meakin Avenue, Clayton, Newcastle, Staffs. ST5 4EY.

TELESALES HOTLINE 0782 212970 E. & O. E.

All prices are correct at time of going to press

BlitSoft

Present their fine range of Amiga utility products.

SYBIL - THE *ULTIMATE* AMIGA UTILITY.
- Whole disk compressor - Save an entire disk as AmigaDOS files; retaining copy protection. Files can then be transferred to ANY media for safe keeping.
- Increase floppy capacity to 1.12 Megabytes of data by formatting a standard DSDD disk. Non SYBIL users can still read these disks!
- AMAX II patch - Allows Amiga drives to read and write MAC format. This is now compatible with ALL AMIGA systems.
- Multi DOS transfer program allows transfer of IBM, MAC, ATARI and AMIGA files to any DOS format.
- Super-Card AMI style back-up system - uses one or more drives. Unit compensates for drive speed incompatibilities, removing the inconsistencies found in other devices.
- Simple to install - Hardware and Software.

ALL THIS FOR ONLY £89.00 INC. P+P!!

Odds and Ends:
KickStart Board: Be totally compatible and fit 1.2, 1.3 & 2.0 ROM's.....Only £29.95
Boot Drive Board: Boot from DFI and reomve that annoying click.....Only £29.95
SuperCard Ami II Utilities: Disk Analyser, Copier Construction Kit, Drive Alignment Speed Checker & MFM Editor...Only £19.95
Super Tracker: Displays Disk Track/Side information .....Only £34.95

UK EXCLUSIVE "BACK-UP BUDDY"
This amazing disk-drive adds a new dimension to your Maverick system. Used alone it is a quality Golden Image drive, as fast, reliable and compatible as any other Amiga drive. Used with Maverick it's custom speed control circuitry allow reliable duplication of many non-standard formats (Long-track etc). Sold ONLY to registerd Maverick owners. **ONLY £99.95**

SUPER CARD AMI II - USERS OLD AND NEW!!
The **ORIGINAL** and **MOST POWERFUL** hardware back-up device now comes with the brand new **VERSION 3 SOFTWARE!** This consists of improved performance and greatly enhanced parameter options. If you are considering buying one of the other systems to appear recently you will miss out on the **ORIGINAL SUPPORTED SYSTEM** with **CONTINUOUSLY UPDATED SOFTWARE**
As **EXCLUSIVE** appointed distributors we offer:
- **FREE USER GROUP!!** - TOTAL SUPPORT!!!
- **AN ORIGINAL PRODUCT** - SUPPLIED BY THE DESIGNERS OF THE SYSTEM
- **VERSIONS FOR ALL AMIGA SYSTEMS** - 500/1000/2000/3000 (PLEASE STATE)
- **REGULAR UPDATES** FOR SOFTWARE (THAT'S WHY WE ARE AT VERSION 3!)
- **AMAZING NEW PRICE! ONLY £34.95** INC P+P!

If you are already a SUPERCARD AMI II owner, why not enhance your system to the new specification of VERSION 3 SOFTWARE. It's the most comprehensive update yet!
YOURS FOR ONLY £9.95 INC P+P!

MAVERICK V3
A totally new tool in the Amiga Archiving market. It's features include:
HyperCopy - For fast error free duplication.
Back-Up Buddy - Fully supported.
Parameters - Custom routines regularly updated to keep up with software releases. Create and store custom parameters.
OverRide - A new tool that makes a program useable on a hard drive.
Inspector - An MFM track editor with whole track or data block modification macros for automation. **ONLY £24.95**

BLITSOFT. 6 DORNEY PLACE, BRADWELL COMMON, MILTON KEYNES, BUCKS. MK13 8EL. ENGLAND.
TELEPHONE/FAX: (0908) 666265 - 24 HOURS.

T.K. COMPUTERWARE

Tel: 0303-812801

SOFTWARE:

Database:	
K-Data	38.00
Prodata	56.00
Superbase Personal	27.00
Superbase Personal 2	65.00
Superbase Professional	165.00
Superbase Professional 4	260.00
Desk Top Publisher	
Outline Fonts	100.00
Pagesetter II	47.00
Pagestream v2.1	145.00
Proclips	22.00
Professional Page v2.1	200.00
3D Construction	45.00
Design 3D	60.00
Professional Draw 2	90.00
Languages:	
3D Construction Set	40.00
AMOS	35.00
AMOS 3D	25.00
AMOS Compiler	22.00
DevPac 3	60.00
GFA Basic Compiler	23.00
GFA Basic Interpreter	40.00
Hisoft Basic 2	58.00
Hisoft Extend	15.00
K-Seka Assembler	38.00
Lattice C v5.01	175.00
Spreadsheet:	
Advantage	77.00
DG Calc	28.00
Maxiplan Plus	52.00
Superplan	65.00
Word Processors:	
Excellence 2	100.00
Kindwords 2	37.00
Pen Pal	63.00
Protext v4.3	50.00
Protext v5.5	103.00
Pro Write v3.1	103.00
Quickwrite	43.00
Scribble Platinum	43.00
Transwrite 2	32.00
Turbo Text	50.00
Wordworth	90.00
CAD:	
3D Construction	45.00
Design 3D	60.00
Professional Draw 2	90.00
UTILITIES:	
BBC Emulator	36.00
CrossDOS Transfer	25.00
Directory Manager	36.00
Disk Master 2	50.00
Doctor Ami	41.00
Quarterback Tools	57.00
GRAPHICS:	
Animation Studio	80.00
Deluxe Photolab	57.00
Image 3D Modelling	170.00
Real 3D	120.00
Deluxe Paint 3	50.00
Deluxe Paint 4	65.00
Deluxe Print 2	38.00
Deluxe Video 3	70.00
PRINTER RIBBONS:	call
BOOKS:	
Amiga DOS In & Out	19.00
Amiga DOS Manual 3e	23.00
Amiga Desktop Video	19.00
Kids & the Amiga	15.00
Learning C for Beginners	18.50
Amiga for Beginners	18.50
Amiga Basic Inside & Out	20.00
Amiga C for Beginners	18.50
Amiga C Adv. Programmers	32.50

Please phone for details of other Amiga products in stock
All prices are in £ and include VAT. Please add £3.00 for UK P&P
Telephone order payment by:
EUROCARD, Access, MasterCard, VISA, AMERICAN EXPRESS, DINERS CLUB
or send cheque, Postal Orders or Eurocheque to:

T. K. COMPUTERWARE
STONE STREET, NORTH STANFORD,
ASHFORD, KENT TN25 6DF, ENGLAND

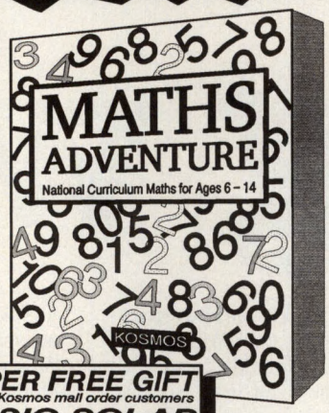
CONTACT RICHARD OR LIZ
ON 071 490 7161

arena

INCREDIBLE NEW RELEASE

FOUR GREAT GAMES
and all this Maths revision...

- Times Tables
- Addition
- Subtraction
- Multiplication
- Division
- Fractions
- Decimals
- Using calculators
- Shape & Space
- Money problems
- Measurements
- Number patterns



SUPER FREE GIFT
only for Kosmos mail order customers
CASIO SOLAR CALCULATOR

AMIGA MATHS ADVENTURE

For ages 6 - 14 Price £25.99 inc. VAT

Now available from your dealer or direct from Kosmos.

Write or telephone for our new FREE 16-page colour brochure of Educational and Leisure software (Please state computer type)

Kosmos Software Ltd, FREEPOST (no stamp needed)
DUNSTABLE, Beds. LU5 6BR
Telephone 0525 873942 or 875406

Access — KOSMOS SOFTWARE — VISA

N.B.P.D.L. AMIGA VIRUS FREE PUBLIC DOMAIN AND SHAREWARE LIBRARY

37 BASFORD ROAD, BASFORD, NOTTINGHAM NG6 0JG
(0602) 267113

FISH DISKS TBAG DISKS

AMIGA COMMERCIAL GAMES

Fuzz Ball	19.95
Robo Cop III	19.95
Hunter	19.95
Populas II	24.95
Terminator II	22.65
Power Monger	12.95
The Simpsons	19.95
Leander	19.95
Wrestle Mania	19.95
Air Sea Supremacy	22.95
Alien Breed	18.95
Nightmare	23.95
James Pond (Robo Cod)	19.95
Round The Bend	19.99
Micro Prose Golf	25.95
Lemmings data disk	19.95
Monkey Island	19.95
Jimmy White Snooker	21.95
Final Fight	21.95

AMIGA PD and SHAREWARE

Mega Ball – Monopoly
Dynamite Dick – Psuedo Cop
Blizzard – Dragons Cave
Amigoids – Pair It – Drip
R.S.I Demo Creator V2.00
MessyDos – Science chemistry
Amibase data base – Mobed
Uedit word pro – SID disk util
Jazzbench workbench upgade
Mary's Prayer Ben E King 2 disk
North C – A68K Assembler
Learn and Play 2 disk (5 years)
C Manual 4 disk set – CLI disk
Vision Mega Demo – the Probe
Moonwalker Demo – Enigma
Budbrain II Mega Demo
Disco Fever – Amigadeus
Beasty Music – Angie & Flash
Silents UK Music Disk No 5

HARDWARE

KAO Blank Disks	
unbranded	45p ea
branded	50p ea
all with labels	
mouse mats	2.50
drive cleaner	3.50

DISK BOXES

80 cap x 3.5"	6.50
40 cap x 3.5"	4.50
10 cap x 3.5"	1.20
Amiga external disk drive	60.00

DISK LABELS

pack of 50	1.00
pack of 100	1.75

JOYSTICKS

FROM	8.00
listed on catalogue disk	

AMIGOS DISKS SNAG DISKS

ALL PD DISKS ARE 1.25 each – CATALOGUE DISK ONLY 70p S.A.E FOR LIST ALL CHEQUES POSTAL ORDERS ETC TO N.B.P.D.L. AT ABOVE ADDRESS POST PACKING AND VAT INCLUDED IN THE ABOVE PRICES

arena

THE COST OF AN ADVERTISEMENT IN THIS IS £10 PER SINGLE COLUMN CENTIMETRE. PRIVATE ADVERTISERS MAY RUN LINEAGE ADVERTISEMENTS OF UP TO 30 WORDS FOR £6 INC VAT. All cheques should be made payable to **MCPC LTD.**

ARENA CLASSIFIED SECTION PLEASE SEND COMPLETED FORM TO:
CLASSIFIED DEPT., AMIGA USER INTERNATIONAL, 116-120 GOSWELL ROAD, LONDON, EC1

NAME .....

ADDRESS: .....

.....

.....

DAYTIME TELEPHONE NO.: .....

SIZE OF ADVERTISEMENT REQUIRED: ..... **PLEASE FILL IN COPY DETAILS BELOW:**
*IF A SPECIALIST HEADING IS REQUIRED PLEASE INCLUDE THIS WITH YOUR COPY.

.....

.....

.....

.....

.....

.....

.....

.....

Dealing with

Since the earliest days of computing databases have accounted for more systems than any other application. For many years (before word-processors, DTP, graphics etc. became cost effective on computers) databases were the räaäiäsänä ädä'äeätäräe¨äfor this technology. They offered immeasurable increases the rate at which information could be retrieved, and a potentially enormous reduction in the manpower required to maintain this information. They also offered myriad ways in which this data could be related and expressed. As the price of the required technology has dropped it has become feasible for the smallest of businesses, and even enthusiastic individuals, to employ databases to hold information on all manner of subjects. Anything ranging from stock records and customer databases for businesses to listings of record collections or fishing statistics for less serious users.

The very first application for computers was lists of things – databases. Michele Pietrantonio explains how you can exploit the Amiga's talents to create your own record keeping for many useful purposes.

As an example during this article, I shall use as a reference the situation of someone wishing to create a database to contain information on members of a tennis club, predominantly for the use of storing membership details, expiries etc... Also considered would be any further use that could be made of the system; it could be used to mail customers whose memberships have lapsed, or to plan well matched tournaments by selecting players of a similar ability to play one another.

Setting up the Database.

Whilst databases are very useful once they have been set up and the data has been entered, anyone who has ever had to do the setting up will undoubtedly claim that this is a potential nightmare. The main problem is that it is usually a 'once only' thing. Anyone can become an expert after creating several dozen databases, but few people will have this opportunity. Once a database has been created it is often difficult to alter should it be necessary to incorporate new information. So it really does pay to take a LONG time to consider not only what is necessary for the present, but also any other information that is likely to be needed in the future.

Our sample database would require something along the lines of the following data 'fields':

As you can see, this is already a considerable amount of information , and there is much more that could yet be incorporated into the database if required.

Once you have considered what information you want in your database, it is also worth deciding what information you could live without, or on which you could economise. Though you may want to create the world's most comprehensive data archive, you must consider that someone has to enter all the data. Often databases designed for smaller businesses don't even get off the ground because of the amount of work involved in initially inputting the amount of data.

If we were beginning to get a bit anxious at this point, we could compromise by removing such things as the person's title, 'phone number, the date they last visited the club or other information. This might make only a superficial difference to the usefulness of the system but could save considerable effort when entering the data.

Now that we know WHAT data we will be using, we have to decide HOW we are going to access it. If we wish to mail all our members whose memberships

Name Christian Name, Surname, Title, Sex, Age....

Address Several lines, including postcode, phone number
Membership type Yearly/Monthly/Expired, Expiry Date, Single/Family etc...

Playing ability Useful for planning tournaments
Last time they visited the club
Last time they were mailshotted for expired members

Databases

have expired then we need to create an index based on their expiry date. We do, however, need to avoid mailing the same customers every week, so ideally we want a two part index based on their membership expiry status and the last date they were mailed. This would enable us to avoid mailing them every time we do a mail shot, and limit it to maybe once a month. We may also want to keep a counter on the number of times a person has been mailed, and maybe after six letters we could give up on them as a lost cause and decide to save our postage costs.

We may also require an index on their skill level for picking tournaments, and one of names for creating nice alphabetical membership listings.

Most databases nowadays have the option of two different kinds of index, either an ON-LINE index or a BATCH index. An on-line index is continuously updated whenever new data is entered or existing data edited, which has the effect of slowing the system down whilst this is happening, and particularly so on systems with limited amounts of RAM. The advantage of this type is that the data is always indexed, and so searches can be performed at any time. Batch indexes are not continuously updated, and they must first be 'sorted' when they are required, which can take many hours, or even days, depending on the size of the database.

> *Anyone who has ever had to do the setting up will undoubtedly claim that this is a potential nightmare.*

> *Though you may want to create the world's most comprehensive data archive, you must consider that someone has to enter all the data.*

It may be that you only do mailshots once a week and it would be possible to get the computer to update the indexes during the evenings or weekend, when it wasn't in use. With some of the more sophisticated software it may be possible to change indexes between the two types, depending on the circumstances. This would enable you to see whether an on-line index would slow the system down too much, or a batch index would take too long to update.

Storing the Data.

Now you've decided what information you want, you need to see how much of your precious disk space it's going to eat up. When you create a database, most packages will show you how many 'bytes' will be used per record. To calculate an approximation of the amount of disk space required simply multiply this record size by the number of records you expect to have (and divide by 1000 to obtain the number of K this will take). It is also usually a good idea to double this figure as you may need to store more records than you expect, as is often the case. And have you considered that your particular database program may not reuse space freed by deleted records?

We must also calculate the amount of space the indexes will take up. This can vary immensely from one package to another, but as a general rule you can say it requires 10% of the original database size per field used per index.

In our example an index on the expiry status and mailing date, together with one on the member's name could feasibly take a third of the space of the actual data itself. This is really a very cursory figure, and you can only really tell accurately when it is in use, but it pays to be prepared.

If the figures begin to seem a bit daunting, it may be necessary to delete a few more fields or indexes again.

More Economising.

There are certain ways of making databases more memory efficient, but these are often only available on more advanced packages, and usually require more effort setting up.

If we regard the above example it may be worth considering how we would store the customer's address. The obvious way would be to create a database with maybe four or five "text" lines for the address. The problem is that we must allocate sufficient lines to accommodate the longest of addresses, but the same amount of space must be used for addresses taking only two or three lines.

What we really need is a method able to accommodate even the longest addresses, but that does not use more space than is necessary for smaller ones. What tends to complicate this problem is that the address would account for around two thirds of the size of the above database, so reducing this by any amount would be significant.

But can we really have our cake and eat it too? Well, maybe! What we could do would be to set up a separate database storing just individual lines of addresses, details of whom this address pertains, and the position of this line within the

Dealing with Databases

CONTINUED

address. An example of this would be:

This would store three lines of the address of customer #109 (which would be the record number of the person in the main database). As you can see, to store three lines of the address would only use three lines, whereas we could store a much longer address should it be necessary.

Customer Number Line Number Details
109 1 7, Market Street 109 2 Woodleigh
109 3 Reading

This method would require an index on the customer number and line number in the address database, and would probably require some specific programming. However, if it were done correctly it would be totally transparent to the operator, and could result in a considerable saving in the space required to hold the database. It would also make the database more manageable since it would be easier to backup to floppy disk because it would be spread over two smaller files rather than held in one very large one. This method is particularly useful where it may be necessary to have the facility for comments, but they are seldom used.

Transferring data between databases.

As hard as you may try to make a database futureproof, you are always working within the constraints of your hardware. Many users outgrow their systems in their ability to deal with the ever increasing workload placed upon them or their speed at dealing with the data. While it has always been relatively easy to convert to a new system for applications such as wordprocessing, changing from one database to another has always posed its own special problems.

> *It is possible to transfer data to a new system in a matter of hours.*

In order to implement a new system it is imperative that the data be transferred intact with as little effort as possible. The first problem is that different machines seldom have the same disk format. The Amiga overcomes this problem as it can transfer files to more different formats than any other computer, catering for PCs, Apple Macs, STs, BBCs, C64 etc....

The next problem, and one that has kept many a company using outdated hardware and software, is the fact that almost every different database program uses its own file format, and it is very rare to find one that can read data from many other packages.

This may seem an insurmountable problem, but it is actually possible to get around it relatively easily within most products, and certainly within any programmable database package.

All databases have the option to print data, usually in a format configurable to the users own layout. This becomes useful is if you are able print the data to a disk file instead of the printer. This enables you to get a plain ASCII file of the data, which can then be ported to the new machine. What we then need to do is to configure the new database to import this ASCII file, which almost any package will do nowadays.

The usual "format" for this kind of transfer is to print each field of a single record within quotes, with all the individual records separated by commas. The above example of the address database would end up thus:

"109","1","7, Market Street" "109","2","Woodleigh" "109","3","Reading"

This format is readable by almost any database, as well as many spreadsheet, accounting and word-processing packages. Using this method it is possible to transfer data to a new system in a matter of hours as opposed to spending weeks re-entering the data.

This article should have given you an insight on how to make databases more efficient. If, like many people, you are currently running a database on a lesser machine and you don't feel confident enough to port it across to the Amiga then I would advise you to invest in one of the many excellent PD database programs available and give it a try. It could be a lot easier than you think and the added processing power and expandability of the Amiga could be very beneficial.

> *If the figures begin to seem a bit daunting, it may be necessary to delete a few more fields or indexes again.*

Amiga Databases (Commercial):

- DB Man
- Imagefinder
- Infofile
- K-Data
- MiAmiga File
- Microgfiche Filer
- Superbase Personal 2
- Superbase Professional 4

In this first instalment of a two part tutorial Paul Overaa discusses some of the problems which programmers face when working with polynomial expressions...

Polynomial Expressions

Part 1 ... Setting the Scene

Polynomial type number representations occur in great many fields of computing science (including a few unexpected ones). Large text strings, for instance, are frequently regarded as very long polymonial based integers for the purpose of computing hash functions.

If, for instance, I used a five bit code such that the letters A-Z were represented by the numbers 1-26 then I could regard the text string S O M E K E Y, which in memory would be being stored as...

	S	O	M	E	K	E	Y
binary character value	10011	01111	01101	00101	01011	00101	11001
equivalent decimal value	19	15	13	5	11	5	25

to imply this base 32 number...

6	5	4	3	2	1	0
19x32	15x32	13x32	5x32	11x32	5x32	25x32

By recognizing that such collections of terms can be written in nested form...

((((((19 x 32 + 15) 32 + 13) 32) + 5) 32 + 11) 32 + 5) 32 + 25

it becomes possible to directly calculate a 'KEY mod M' hash value for any string of size N and this is in fact what the technique known as Horner's method assumes. For the above base 32 example a C based conversion fragment would look like this...

```
#define BASE 32
h=key[0]; for(i=1;i<N;i++) { h = (
(h*BASE) + key[i] ) % M; }
```

Usually M is made prime and the purpose of this is to avoid some rather unfortunate mathematical situations (which result in characters of the key getting missed) that occur when the radix and M have common factors.

In this situation the string is being treated as an array of characters and these representations do in fact work very well in a great many of the simpler applications. If, for example, I wanted to add two general polynomials together I could do it easily by using...

```
for (i=0;i<N;i++) { r[i] = p[i] + q[i]; }
```

There is in fact a minor complication here if the polynomial is representing an integer - the resulting sum of any given term might become larger than (radix-1). The solution is to add r[i]/radix to r[i+1] and then replace r[i] with r[i] % radix.

The bad news is that these reasonably simple approaches sometimes cause more difficulties. Consider for instance how you would represent this polynomial...

$$x^{2000} + 2x^{14000}$$

Despite the fact that this polynomial has only two terms, the array representation would require us to allocate space for fourteen thousand coefficients. For this type of situation we need to look for a more space efficient, representation. One solution is to use a linked list which only contains entries for those terms which have non-zero coefficients.

To do this we now have to store both the coefficient and the power of each term. A typical term entry might, as a C structure, look like this...

```
struct term = {
        int     coefficient;
        int     power;
        struct  term *next;
        };
```

or if we needed to handle real, ie non-integer, number coefficients...

```
struct term = {
        double coefficient;
        int     power;
        struct  term *next;
        };
```

List operations are often simplified by the use of appropriate head and tail entries and often such lists will be given dummy head or tail entries.

The tail entries are, incidentally, often given two characteristics: Firstly, a sentinel power value can be specified. Secondly, the 'next' field of the tail node can be made to point to itself. Both of these things can simplify certain list operations.

To initialize an empty list we have to allocate some memory for the head and tail nodes and then install suitable initial node values. The following C routine, sets up an empty list and then returns a pointer to its head...

```
struct term *initialize_list()
{
struct term *head, *tail;
if(head=(struct term *)calloc(1,
sizeof(struct term)))
  {
     if(tail=(struct term *)calloc(1,
sizeof(struct term)))
  {          head->next=tail;
tail->power=SENTINEL_VALUE;
tail->next=tail;
 }
          else {          free(head);
head=NULL;                 }
  }
return(head);
}
```

Routines to delete such a list of terms are also quite easy to write. Here's one which, given a head pointer, will delete all nodes (including the head and tail entries)...

```
void remove_list(struct term *node)
{
struct term *next;
do {
    next=node->next;
    free(node);
    node=next;
  } while(node!=node->next);
free(node); /* remove tail */
}
```

The insertion of a term into a list is a routine job: Allocate some memory for the new node, adjust the pointers so that the predecessor's next pointer points to the new node and the new node's next pointer points to original predecessor's next node. Then place the coefficient and power values into the appropriate fields. Here's a typical piece of code...

```
struct term *insert_term(double coefficient,
int power, struct term *predecessor)
{
struct term *newterm;
if(newterm=(struct term *)calloc(1,
sizeof(struct term)))
  {
      newterm->next=predecessor-
>next;
    predecessor->next=newterm;
    newterm->coefficient=coefficient;
    newterm->power=power;
    }
return(newterm);
}
```

The coding of most of these list-orientated polynomial procedures is usually straightforward but, as we will see next month, there are a few occasions where the list equivalent of an array based function can be considerably more involved.

to be continued...

MENTOR QUAD

The *QU*ick *A*nd *D*irty on Double Buffering. Isn't that something to do with trains? Ask the man who knows all the answers: Reggie Stair.

Welcome to the machine, my friends. You know, a lot of people ask me, "Reggie, is that your real name?". And I always say, "I'm glad you asked me that - Double Buffering goes like this."

Say you are writing a program which makes use of lots of graphics. It could be, for example, a 3D wireframe type game. It could even be a demo if you wanted to set your sights slightly lower. (What! A demo less important than a game?! Yes - well that's what I think. If some of the demos that I've seen had a game as well as all those graphics, they would be instant winners.)

So your program works something like this:

Clear the screen

↓

Draw all the graphics

↓

Repeat as necessary.

Now sometimes this will work fine, especially if there isn't much to draw. If your code is triggered off the screen interrupt, then the graphics will be drawn to the screen while the electron gun which scans the monitor is whizzing back up the screen after a hard frame's work. A bit like this:

Wait for signal that the frame has been drawn

↓

Clear screen

↓

Draw all the graphics

↓

Graphics placed on monitor by hardware

↓

Repeat as necessary.

If this is the way your graphics are made then congratulations - you have the smoothest graphics possible. This is the mythical "fifty frames a second" animation you may hear about. If only everything could be so simple...

Unfortunately, there isn't always time to do all the drawing in the time between screen scans. If not, then the screen will flicker as it is erased and re-drawn half way through a scan. Yuck, yuck, yuck, worse than a ZX81 in Fast mode (well, almost).

To avoid this dreadful flicker the technique of double buffering is used. It works by using two separate screens. When one is being displayed, the other is being created. Then the screens are swapped, and the procedure continues. Like this:

Display Screen 1

↓

Erase and Redraw (hidden) Screen 2

↓

Display Screen 2

↓

Erase and Redraw (hidden) Screen 1

↓

Repeat

You might wonder how we can have two screens at once. The answer lies in the fact that the screen is nothing more than a block of memory. The address of this memory is sent to the hardware, and the hardware displays it. If you send a different address, a different screen is displayed. If you wanted to, there is no reason why you couldn't triple buffer a screen - there just wouldn't be any point.

Remember that each screen takes up memory. For a 32 colour 320x256 screen, this is 50k. Memory might be cheaper these days than it was five years ago, but you still have a finite amount of ram to disk out. Screen ram, as you all know, needs to live in Chip Mem so you might not have as much as you'd like...

There is no example source code on the disk this month, for I'm saving it all for something extra hoopy in next month's ish. Be there, or be a two dimensional four sided polygon. This is Reggie Stair, in his bedroom, over and out. Oops, radio operators don't actually say "over and out", because "over" means "over to you, I've had my say" and "out" means well, "out". So there. It's just "out". Out.

Listing 1 - Double Buffering in C (easier to understand than code!)

```
/* Defining the screen structures */

struct Screen *screen1; /* The screen of
the first display */
struct Window *window1; /* The window inside that screen */
struct RastPort *rp1; /* The pointer to
the screen */

struct Screen *screen2; /* As above, but
for the second screen */
struct Window *window2;
struct RastPort *rp2;

struct RastPort *rp; /* The pointer of the
currently
displayed screen */

int Current_screen = 2; /* Screen 2 is the
one displayed at start */

/* Open the screens and windows and
assign pointers */

screen1 = (struct Screen *)
makescreen(depth);
window1 = (struct Window *)
makewindow1();
rp1 = window1 -> RPort;

screen2 = (struct Screen *)
makescreen(depth);
window2 = (struct Window *)
makewindow2();
rp2 = window2 -> RPort;

rp = window1 -> RPort; /* Screen 1 for
writing, 2 for display */

/* The function that swap screens */

void gfx_swapscreens()
{
if (Current_screen==1) /* i.e. screen 1 is
displayed at moment */
{
ScreenToFront(screen2); /* Display
screen 2 */
rp=rp1; /* set screen 1 for drawing */
Current_screen=2;
}
else
{
ScreenToFront(screen1); /* Display
screen 1 */
rp=rp2; /* set screen 2 for drawing */
Current_screen=1;
}

}
```

Program Design Techniques

Paul Overaa
KUMA £16.95

Mike Nelson reserves his seat in another Paul Overaa extravaganza. . .

A roller coaster ride of sex, drugs and programming.

Phew! No sooner has one Paul Overaa book hit the streets than another thuds onto my mat for review. What is this guy eating for breakfast? Regular readers of *AUI* will know that Paul has been a contributor since the inception of the magazine. He has written extensively on a diverse range of subjects from music and MIDI to in-depth programming articles such as the recent *AUI*-Spell project. I reviewed his "Mastering Amiga C" book just a month or so ago but this new one from Kuma is a completely different kettle of fish as it largely moves away from the Amiga specifics and into the realms of system independent programming.

Such a generic programming approach would, I dare say, represent a significant departure for most Amiga programmers, and I can't see this as being a particularly bad thing as much code is hacked into shape and therefore doesn't port to other systems particularly well. Whether the Amiga programming community is ready to take these "real world" ideas on board is another matter entirely however.

The book itself is a pretty meaty affair of nearly 400 pages, and the information is organised into four main sections. The first of these deals with the tools of the trade and various methods of designing programs. Note that this does not mean writing programs \Iper se\i but is more concerned with breaking down a problem into byte (sorry, couldn't resist that one!) sized portions of whatever. The "whatever" can be a simple form of "Pseudo Code" which resembles a program but Paul advocates the use of a number of diagrammatic methods, his favourite seems to be the Warnier Diagram. The explanations of these take up a fair proportion of the book with many examples of this comparatively simple, but effective, method. Personally, I dislike such an approach, preferring to make some brief notes to describe the problem and then diving in with the compiler. Bad boy, I know, but it works for me!

Although Paul obviously likes arnier diagrams (they use a kind of "curly bracket" approach to break the problem into successively smaller chunks), he also offers several alternative approaches, including a pretty intense explanation of set theory. Once all this is out of the way the translation of diagrams into real code forms the second section, and the emphasis is on introductions to BASIC, C and Assembler, in a machine independent way.

The best way to learn about programming is analysing existing code and "Program Design Techniques" has a number of complete examples in the three languages mentioned previously. These differ in complexity from finding the size of a files to implementing MIDI file readers.

> *No matter how well you plan your program with flow charts (Yuk!) or Warnier diagrams, your code will ultimately crash at least a few times.*

Generic Programming

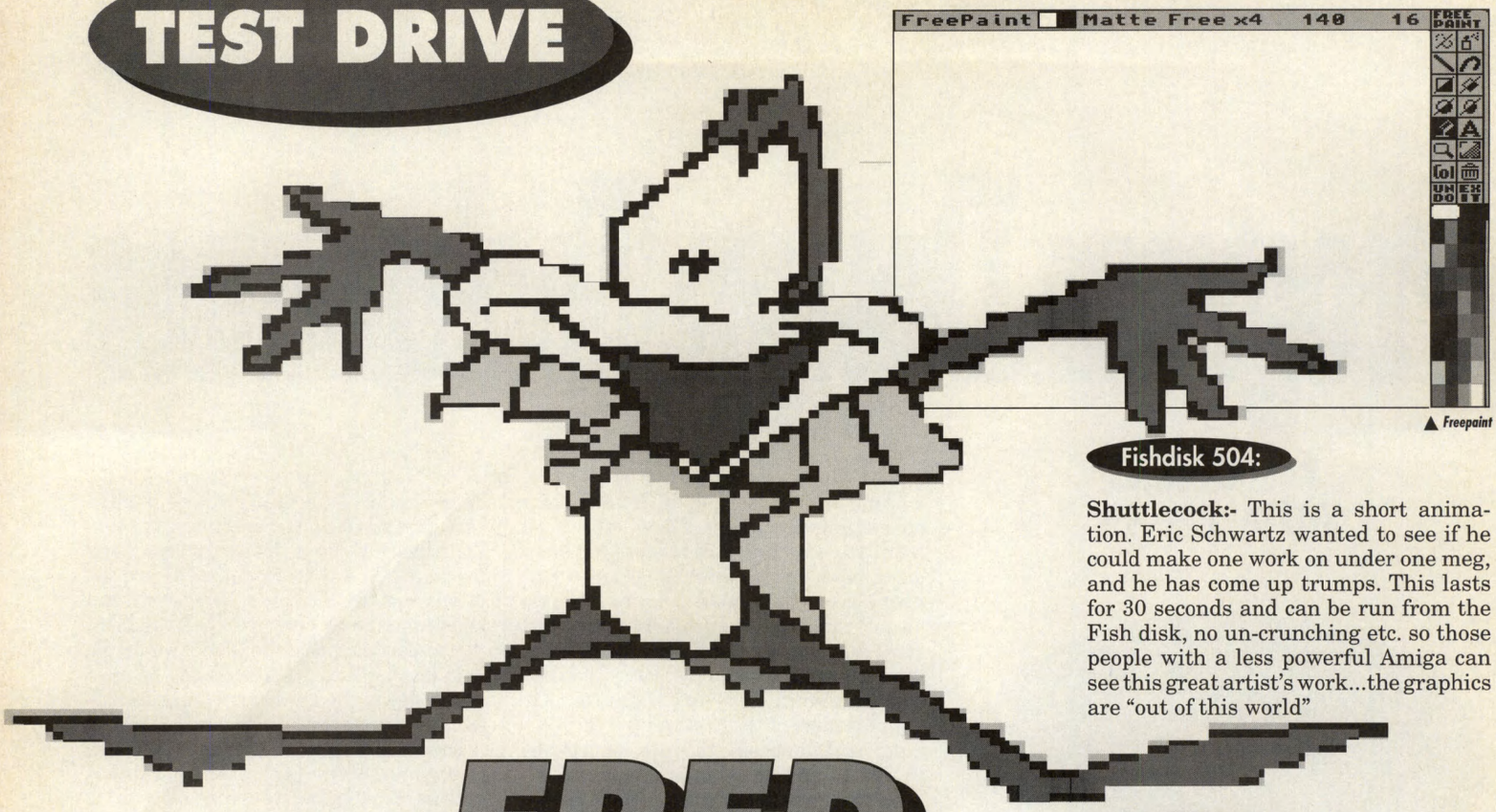
The last section contains some information specifically for Amiga programmers, starting with a description of the WIMP user interface. In a book about generic programming it seems amazing to find a program for generating fancy shaded backgrounds using a custom copper list. I'm not so sure that the purists would be too impressed with this idea. However, in writing the Warnier diagrams, Paul showed just how powerful they can be in that most of the technique is hidden until the code itself, although a reasonably detailed knowledge of the hardware is required before you can generate the diagram.

The final chapter is, in many ways, one of the most important in the book as it details debugging techniques and is therefore invaluable. No matter how well you plan your program with flow charts (Yuk!) or Warnier diagrams, your code will ultimately crash at least a few times, unless you are super human. In using a planned approach you should avoid glaring errors of the underlying logic like forgetting that people can change address or share a 'phone number, and just have to worry about releasing memory and checking pointer validity or whatever.

In conclusion, "Program Design Techniques" is a difficult book to categorise as it is not particularly for beginners, but on the other hand, it should be! If everyone were taught those techniques, life for programmers would be such a lot easier. People who write games really are not, on the whole, good examples of system programmers. This is often necessarily so as they need every ounce of meat squeezed out of the computer just for speed sake, but these are by far the most common programmers found using the Amiga. That is not to say that Paul's ideas are not applicable to coding games, however. Paul Overaa's book should go some way toward persuading potential programmers or "apprentices" that the Amiga is a powerful platform for writing code to be used on other machines.

Contact:
Kuma Computers,
12, Horseshoe Park,
Pangbourne,
Berks, RG8 7JW
Tel: (0734) 844335

TEST DRIVE



▲ Freepaint

FRED FISH

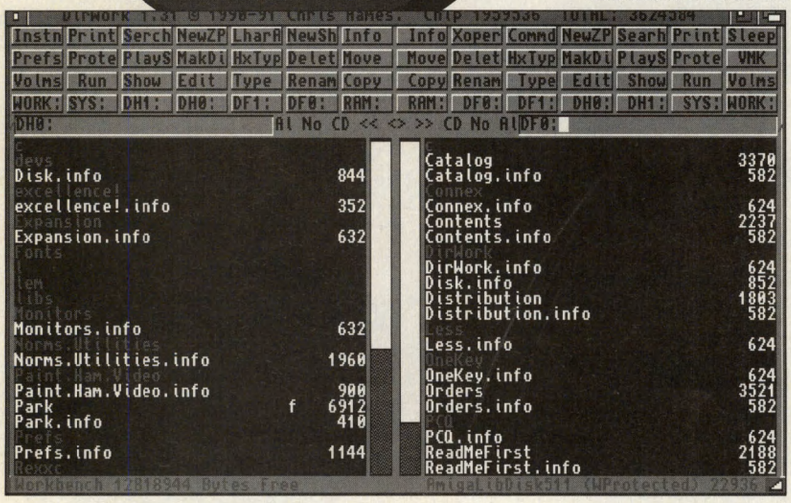
There are so many Fishdisks coming out that it is difficult to keep up with all the excellent P.D. programs that arrive. So we have picked out a selection of the best from the most recent disks. And very good they are too, says Norman Stone.

Fishdisk 490:

The Anti-Lemming:- This Animation is one Eric Schwartz which takes great pride in. Apparently he has spent a lot more time on the still graphics, This animation lasts a full two minutes and ten seconds(including titles) and should run with two megabytes of memory. Of course, if you are lucky enough to own a hard drive and moviesetter then you can run this as one file from the harddrive, Otherwise it is a case of un-crunching to two disks.

Fish disk 498:

Freecopy:- This is another great. I have not seen a program like this before. Have you ever tried to back a program up and find you can't? Well, this one removes the protection so you can use a copier to make a backup for your own use.



▲ Dirwork

Fishdisk 504:

Shuttlecock:- This is a short animation. Eric Schwartz wanted to see if he could make one work on under one meg, and he has come up trumps. This lasts for 30 seconds and can be run from the Fish disk, no un-crunching etc. so those people with a less powerful Amiga can see this great artist's work...the graphics are "out of this world"

Fishdisk 505:

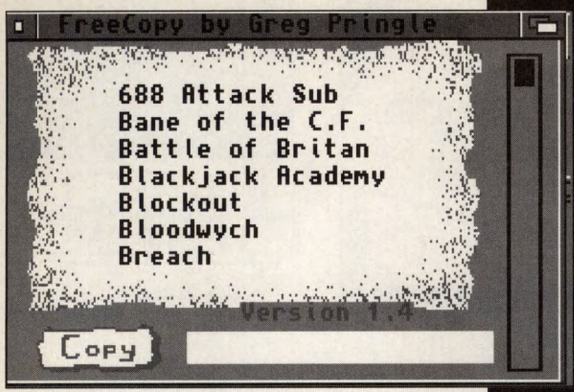
The Dating Game:- The animation lasts nearly 4 minutes and requires 3 MB of RAM to run. A first class animation by Eric (Anti-Lemming) Schwartz, a bit of a saucy one. This is very funny. If you can't run it on your Amiga, find a friend who has one with 3 meg and grovel and beg to be allowed to run this animation on their machine. It unpacks on to two disks. This cartoon animation follows the style of the short theatrical cartoons of earlier days.

Fishdisk 511:

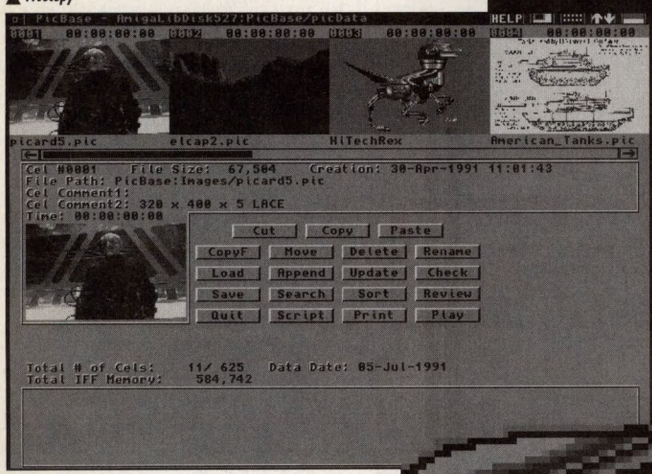
Dirwork:- A fast, small, simple, efficient, shareware Dir Utility that gets directories off floppies in about half the normal time. Configurable options and buttons, it can be put to sleep so it can be recalled fast. Yyou can also define popkeys to start programs, show Iff files edit files, Copy and move cloning so that the date/protection/filenote is same. Bootblock and virus memory checking ability too. There are too many options to list. It is only 45k but a very powerful program, works on 1.3 and Workbench 2.04.

Fishdisk 537:

Picbase:- One of the main attractions of the Amiga is graphics, this program is a database which can store all IFF images and brushes on disk. When used it displays a miniature monochrome (8 or 16 level) image of each file, with information such as the full pathname, the creation date, file size, image size and depth, display mode, and filenote. The images



▲ Freecopy



▲ Pictsaver

are displayed four at a time and can be scrolled in real-time, manually or automatically sorted, presented as a slideshow, and more. But there is a small catch, Picbase is in interlace so you have to put up with some flicker but it is well worth it.

Fish disk541:

Llamatron:- Well, I know this is a bit of an old game but the graphics are smooth and it at least lets you get into the game before becoming very dificult. By then you are too hooked to leave it alone, you just come back for more punishment. Author Jeff(The Last Hippie) Minter.

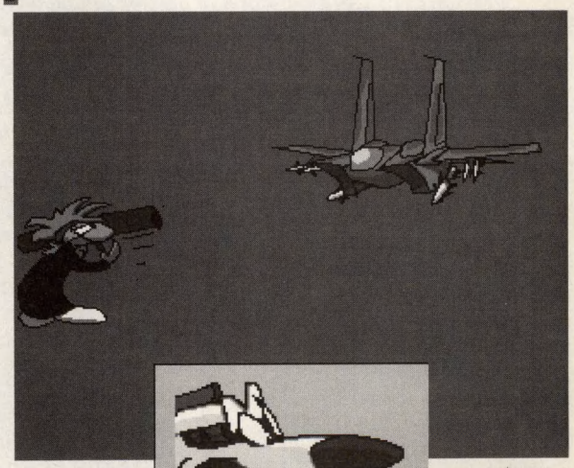
Fishdisk 543:

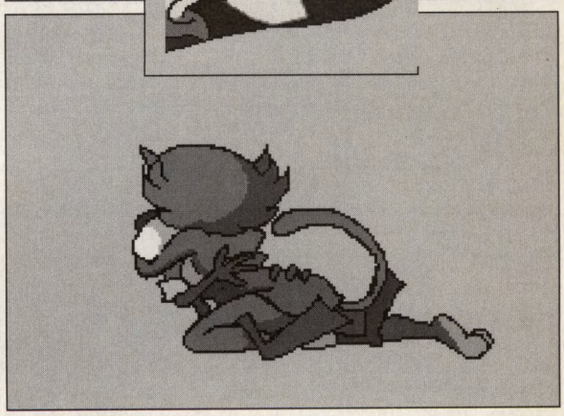
Pictsaver:- There must have been times when you have seen a picture on the screen that you want to use. Well you can use Grabbit or this great program called Pictsaver. It is a small utility that allows you to take snapshots of windows, which can then be incorporated in almost any paint-program. As IFF-ILBM files you save a whole screen or a window or better still cut out an oblong brush and save that as an Iff file. Pictsave now features auto-numbering (automatic changing of filename) to help you when saving a series of pictures. It also features optional compression of pictures. Pictsaver can save all screen-modes and sizes correctly.

Fishdisk 548:

Freepaint:- Freepaint is the closest I have seen a paint program come to Deluxepaint. Here are a few items of which it is capable Sketch, Spray, Line draw, Spline mode, Rectangular drawing, Polygon drawing, Circle, Ellipse, Fill, Text, Zoom, Brushes, Iconify. So for all those users who would like DPaint but find money a bit tight here is the ideal program.

As you can see that there is plenty to hook out of the evergrowing Fish pool. Happy fishing!

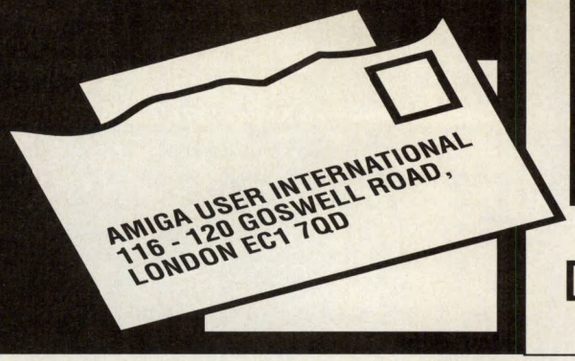


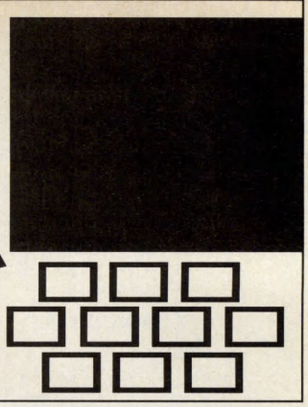


Top and Middle: Art:- Lemming Demo
Bottom: The dating Game

AMIGA ANSWERS

Andy Eskelson searches out the answers to your tough technical questions





When writing to Amiga Answers, please include as much information as possible about your system, and about which software/ hardware you are running.
This will help to determine what your problem might be and its solution!

Dear AUI,
Our branch of Cerebral Palsy has purchased 3 Amiga 500's for three of our children, now what I want to know is what educational disks are available for the age group of 9 to 12 years, could you let me know as soon as possible please.

Mrs Moran,
Co. Longford
Ireland

Dear Mrs Moran,
There is a fair amount of software suitable for that age group, but as always it depends on the ability of the child using it. You also have a second problem with the nature of the illness that your children suffer from.

Some programs:
For the young...
ABZoo (MichTron) Letters and Animals program.
Barney Bear Goes to School (Free Spirit)
spelling, numbers , colouring etc
For slightly older 7 yrs up..
One To One Match (Computer Sight) A match the cards type of program
PETE (Superior Software) Teaches basic keyboard recognition
World Odyssey (Polyglot) Geography teaching
The Talking Animator (JMH Software) animation designed to be used by children.
I also contacted The British Computer Society Disabled Specialist Group, Dave Winder and I have reproduced his reply for you as it contains some interesting points. Dave is also the contact for the Amiga section of the group and his address is included in the reply.

OK Andy, thanks for the copy of the enquiry.
I would suggest, as most kids with CP are as intelligent if not more so as 'normal' kids, that any software for that age group would be OK. You will know as much about this as me, so perhaps you could come up with some suggestions. The Fun School 3 series covers that age group I believe and is very good.
The more obvious problem that comes to mind is with the input device required. Depending on the severity of the CP, input using a mouse could be difficult if not impossible. If the kids are able to use a mouth stick then the Marconi RB2 Trackball would be useful. This has a third, lockable, drag button which when operated by the mouth stick would make all input fairly easy.
Another option, although more expensive, which is certainly very versatile would be the Concept Keyboard. This is a touch sensitive keyboard, a flat grid of squares that can be programmed with an overlay designer, that can be customised to any degree. The kids could have a custom grid programmed to tie in with a custom overlay, so any keyboard operation could be made by just touching the relevant grid of the overlay. Sorry if this is sounding confusing, an example would be using Deluxe Paint with a specially programmed overlay that had graphical representations of the on screen options printed on it. These functions could then be used by simply touching the picture on the keyboard.
Please do include me as a contact for the BCS Disability Programme, maybe you could suggest the lady writes to me with her specific needs in terms of both software and input devices, including details of the severity of disability and educational sphere involved.
My address is:
Dave Winder
British Computer Society Disability Program
1 Thomas Wall Close
Sutton
Surrey SM1 1SP
Another organisation you could contact is Think Limited. They are involved with an number of spacial needs schools. They are also involved in touch screen technology on the Amiga. I'm sure they would help. Their address is: 46C High Street, Erdington, Birmingham. We have in AUI February a Special Supplement dedicated to education. You should also be able to find plenty of possible programs there.

Dear AUI,
I've recently heard and read much about Commodores CDTV, but most of the basic information like specifications, what it can or can't do seems either lost in hype or a plethora of verbal diarrhoea.

I'm seriously thinking about purchasing one, but is it really any good or is it just a CD player stuck on a basic A500. Not that I'm suggesting that the A500 is c**p I already own a much worshipped A500 with 3 megs and a hard drive.

I know Commodore are trying to play down the computer part of CDTV and calling it a family entertainment centre, but some of us (not techies) want to know all about this dimension.

Please could you answer a few questions about the CDTV

1. How fast is it at loading in comparison with the standard Amiga?
2. What are the graphics like on a normal TV set compared the A500?
3. How much Ram has it got and could this be expanded?
4. How much chip ram can it handle? If not a lot are there any foreseen problems arising because of this?
5. What is it like at loading different sections of a game compared with an A590 hard drive?
6. How fast is the processor chip?
7. I believe it is possible to boot 3.5 inch disks from a normal external drive . If so can you mount your external drive from the startup sequence. If after mounting your floppy you then want to go back to CD input have you got to mess about with the startup sequence every time.
8. I have heard that quite a lot of floppy games will not work with the CDTV why is this?
9. Also from what I have heard the controller for playing games is rubbish. So are the rumours about keyboards joysticks and mice purely speculation or are they in the pipeline now, and if they are how long before they appear on the shelves?
10. As you might have gathered most of the questions relate to game playing in some way or other, but will it be possible to expand the CDTV into a real computer workstation ie DTP MUSIC WP in fact everything Amigas do now. The reason I ask this is because of Commodore's negative attitude to the word computer when they speak of CDTV as though it's a swear word, which seems rather odd when computing is really their business.
11. Being a CD playing unit obviously the sound is going to be something special. So for us poor people who don't yet own a delux stereo monitor or a Hi-Fi or a stereo TV can you fit a Soundblaster or the like so the clear stereo sonics can be appreciated. Would it in the near future be possible to use a normal music type CD player as an input drive.
12. Now for some things it supposedly can or can't do. Besides playing normal music CDs what else can it do? The new Kodak CD camera I hear you say but that is not yet ready and there are conflicting reports whether it will or won't be compatible, sorry for the touch of cynicism but what can it do?

If I eventually buy a CDTV it will sit next to my trusty A500 not replace it. That makes me think of another question.

13. Is it possible to connect the CDTV to the A500 and interact with each other.
14. Finally what sort of fair price should the CDTV be retailing for

Philip Ebbans
Walsall

Dear Philip,

You will note that I have edited out some of your more pointed comments! You are asking a lot of questions that you could have answered yourself if you had thought about them a little, but to take your questions in order.

1. The CD drive has a maximum data transfer rate of about 170K per sec. That's about 3.5 times faster than a standard floppy.

2. The graphics are Amiga graphics via the Amiga chipset.

3. 1 meg, expansion a bit vague at the moment.

4. Chip ram is 1 meg, problems will occur if programmers don't follow the rules.

5. The speed of the data transfer is about 170K/s as I have already stated, but the track accessing is very slow. However IF the programmers have organised the data on the disk correctly that this delay can be minimised. In other words it is up the programmers to ensure that the CDTV drive does not have to thrash all over the disk surface looking for the correct data.

6. It is an Amiga, specs are as per.

7. I think that the external port is configured as DF0: but I'm not too sure on that point at the moment. There is no startup sequence that you can modify, CDs are read only! You can boot from the external floppy and work from there. The CD IS A STANDARD AMIGADOS DEVICE so you type CD0: or whatever and away you go.

8. Duff programming is the normal reason, other than that the reasons differ with each game.

9. Add on units are about 6-12 months away projected as at least until we see them over here in the UK but as always things can change.

10. There are many titles already available, and more will follow. The Fish collection is available so it can do many things even now. I must admit that I don't understand CBM's marketing policy towards the CDTV. It seems to be an anti-techie approach which I personally find very insulting. I am a professional engineer and I spent many years of hard graft gaining my qualifications and as such I don't like the implications behind the word techie. That aside there are a couple of million Amiga Users out there. I WANT A CDTV FOR MY B2000. A500 users want the 690 drive, and we want them NOW. The extra work involved in connecting the CDTV unit to the 2000 or the A500 is fairly trivial, as all of the basic development has been done. Providing the units were compatibility tested together all of the bugs could have been ironed out at the same time. It seems, at last, from their U.K.TV advertising campaign, calling it the AMIGA CDTV, that Commodore might have seen the light and realised their previous attitude was unproductive. We hope so anyway.

11. There are two sound sources. The main computer sound, the same as with any program is one, and there are a couple of connectors on the back that supply the full CD sound to some sort of audio device, be it a HiFi or separate amp.

12. Kodak have made a few flops in their time, the disk camera for one. With the likes of the Canon Ion Kodak may be too late we will have to wait and see on that one. The Amiga can do anything that the programmers are capable of. Look at what programmers did with the C64, some amazing software is available for that machine; the same is true for any computer.

13. Providing there was the driver software available in each machine there should be no reason why they cannot talk to each other. I get the impression that you want to access the CD drive from your A500. That probably will not work quite as you would like it to, but with PD programs such as ParNet available it might!. What you need is the A690 CDTV unit.

14. I cannot comment on pricing, after all some software companies charge hundreds of pounds for a couple of disks that cost a few pennies each. It is the development of the product that determines the initial cost. The bottom line will always be "whatever the market will bear" or "whatever the punter will pay".

Dear AUI,

I am considering buying a GVP series II 52 meg hard drive for my Amiga 500. I have seen advertisements in an American magazine where they sell this hard drive for approx 600 dollars. At the current exchange rate of 1.66 dollars to the pound this works out at 361 pounds. In the UK the same product is advertised for approx 500 pounds. Indeed many products are a great deal cheaper in the U.S.

I appreciate the risks involved especially if the goods are faulty, but if purchased using a Visa credit card are there any savings to be made?

There are some questions which need answering if the purchase from the U.S. is to become a viable option.

1. How do you overcome the power supply differences?

2. How much is shipping and import duties going to cost?

3. Are there any other difficulties?

Jonathan Evans
Pontypool

Dear Jonathan,

I have purchased a couple of things from the U.S. and generally it is very easy, but I may have been lucky. Providing that the company that you order from deals with overseas orders there should not be too much trouble.

Normally you will pay for the goods via credit cards and for the shipping at the same time. Import duty and VAT will have to be paid when the goods arrive in the U.K. When the goods arrive you will normally be informed of this by post by the Customs, together with a statement of the duty to pay. Once the duty has been paid the goods will be released and you can collect them.

Costs: currently VAT is 17.5% I don't know what the current import duty is but I normally add about 30% to the cost to cover both VAT and import charges. Just adding VAT to your U.S. price brings the total up to about 421 pounds, on top of that there is the import duty to pay. I feel that you are getting so close to the 500 pound U.K. price that it is probably not worth the cost of shipping the unit over from the U.S.

The biggest problem that can happen are things going astray. That can take a lot of sorting out.

Dear AUI,

Could you please advise me as to which software I should use to put together my own disks, like the ones you get in the PD catalogues. For example, a soundtrack playing while credits go up the screen after which, by pressing the mouse button a different soundtrack starts playing while displaying the contents of the disk.

Do you think that you could bring ***AUI*** out fortnightly?

Do you know of any magazine purely dedicated to sampling and making music on the Amiga.

C. Mason
Cornwall

Dear C.Mason,

*There are several programs that will allow you to do the things that you want, **AUI**'s coverdisk, for example, is normally programmed using Hyperdisk type software, Gold Disk's Hyperbook or Inovatronics' CanDo. However, remember that these programs do take up quite a lot of disk space, and therefore leave much less room on the disk for the programs.*

***AUI** fortnightly....I'm sure that when the editor and staff recover from their heart attacks you might get a printable answer to that one !!*

There is no mag for sampling and making music for the Amiga that I know of. Demand would be so low that it would not be economical to produce one, anyway that topic is covered quite widely in most magazines.

Dear AUI,

I have an A500 1Mb with a MPS 1550C printer. I am still an inexperienced user though I am learning all the time.

I am looking for a Database/Mailsort program that would allow me to store 800-1000 names and addresses, sorting them by name and then printing the full name and address to labels for sticking onto envelopes. At this stage there is no need for any other information to be stored other than the name and address.

Your magazine is so packed with advertisements that I do not know which way to turn, so please could you tell me if you know of any such program on the market, or if you have any suggestions as to where I can search for such a thing.

Malcolm Cook
Northants

Dear Martin,

That application is VERY small indeed and just about any database will do the job. There is one point that you should bear in mind: running any sort of major program such as a database with only the internal drive is a bit restrictive. A second drive or better yet a hard drive is really needed to make things useable.

There are lots of programs about, Superbase Pro, The Works!, Prodata to name but three. I suspect that you could also find a couple in the PD libraries.

If you are really into programming you could program such a simple task in CanDo, Basic or Amos if you really feel like it!

Remember that label printing is a bit of an art in itself and will take quite a bit of setting up. You can get tractor feed envelopes if you want to go to that expense. Such envelope cost about £30 per 1000.

Dear AUI,

I am having trouble with the part 4 article on Workbench (creating a floppy disk from scratch).

I have formatted the new disk without any problem, but I am unable to copy the C directory or S directory from Workbench. I have two drives installed and tried many commands taken from

AMIGA ANSWERS

C O N T I N U E D

◄ AmigaDos Quick Reference book but without any success. All I get is "Unable to load, Not of desired type". Is it possible that C and S dirs are locked inside Workbench?

Thank you for some very interesting articles.

John Stammers
Canvey Island

Dear John,
C and S are NOT locked in any way. I don't know exactly what you are doing but it is very simple to copy directories

If you just want to copy an entire directory and CREATE it on the destination disk the procedure is thus:

(assume Workbench disk is in DF0: and new disk is in DF1:)

from CLI or shell type

copy from df0:c to df1:c all

that will copy the entire c directory to the new disk. The same applies to the S and any other directory

If you only want to create a subset of the C directory, then you will have to do the job manually.

from the cli type:

cd df1:
makedir c
copy c:filename to df1:c
.
.
.
and so on.

Note that c: is a logical assignment and is a part of the Workbench initialisation sequence, you could substitute df0:c/filename instead, but why make typing difficult for yourself!

I hope it should clear up that little problem.

Dear AUI,
I would appreciate it if you would give me some advice.

What I am looking for is a drawing package which will draw electronic circuit diagrams to the current B.S. standards. I wish to incorporate the drawings into documents created using Kindwords 2. I currently use a TV as a monitor so a low resolution system would be preferred.

My machine is an Amiga 500 1Mb and two additional drives.

Mr I Gray
Seeb Airport
Oman

Dear Mr Gray,
There are two packages that will do what you want .. after a bit of work by yourself that is! ...

The simple system is IntroCAD by Progressive Peripherals & Software.

This has the best output on simple printers but it will NOT produce a file that you can merge in with Kindwords. (At least not with the version that I have.)

The other package is XCad Designer.This will produce IFF plots that you can use in documents, but remember that the IFF file is rather limited in resolution.

As for the B.S. symbols, no package comes with them, but all that you have to do is draw them as you need them and save them as a part. That way you will gradually build up a library of parts as you need them.

I would tend to go for Introcad and plot out in Introcad and then photocopy the drawings and add them to the document by hand.

You will find that Introcad sets the interlace mode. That means that there will be quite a bit of flicker. You can overcome it to some extent by careful colour selections. XCad can work in both interlace and non-interlace modes and so is a little better in that respect. However XCad is somewhat limited in its output choices.

Dear AUI,

First of all let me tell you that your new look user disk is excellent, unlike previous letters I believe that this has improved the magazine 100%

Anyway my point is :- Using the hyperdisk is very easy and provides very good information. If you want to go to the project menu and select print what happens? Nothing, that's what !

Now all I want to know is why I am unable to print out all of this brilliant information (graphics included).

Mark Bewick
RAF Cosford

Dear Mark,
I wonder what is going on... I will pass this onto our brilliant Hyperdisk engineers and see if something can be done about this. As a get-you-out-of-a-fix have you tried to use the graphicdump program that was supplied with your Amiga, I have found that to be VERY useful for screen dumps and the like.

Dear AUI,
In your August issue in the Mentor section, you are showing how to install a disk, well I tried this like you said and I opened a CLI window and typed INSTALL the screen said usage(drive)(df0,df1,df2,df3)(noboot)(nocheck) then I inserted my own disk (formatted) and typed df0: (ret) and the screen said "Unable to load df0 error code 212." So I tried to do the same thing, only this time I left my Workbench disk in after the install and df0 uncommand came on the screen.

So I went to the pref and opened the copyprefs window and the screen said: copying devs system configuration to df0 devs chip can't open df0 dev/system-configuration object in use

So as you can see I have a problem. Help me! By the way I typed install ? and the screen said "drive A noboot checks". I typed df0 and got a message of unknowncommand. Well, I thought maybe it was my ram expansion so I turned it off and tried again but the same thing happened.

John O'Niel

Dear John,
Read the instructions they are correct.

1. *Workbench in drive.*
2. *Open a CLI*
3. *Type install ?*
4. *Wait for disk activity to stop*
5. *Remove workbench*
6. *Insert disk to be installed*
7. *Type df0:*
8. *Wait for disk activity to stop.*
9. *Remove installed disk, replace workbench, job done.*

That's all there is to it.

Dear AUI,
Please could you shed some light on the different types of ram chips available, as I am considering purchasing a ram expansion for my A500 to take it past the 1Mb barrier. Since I do not want to remove/replace my Gary chip, I am limited to systems such as the Cortex/Supra 500rx type. Both use simms. Recently I was told that if I expand these units from 4 megs to 6 or 8 megs I would have to throw away my existing simms and replace with another type. Is this true? Could you please, please test ram expansion units so some quality/costs/specification comparisons can be made. Also since your hard drive test other units have become available e.g. the Evesham Micros 40 and 100 meg updates concerning these drives would help further comparisons when entering that ever increasing market.

J.Smyth
Ilfracombe

Dear J.Smyth
Ram expansions are a bit of a problem, they tend to change design from time to time. SIMMS are simple, a lot of ram on a single in line carrier. There are several types. It may well be the case that the unit can take two different types of SIMM, one with twice the capacity of the other. I do know of some PCs that you have to throw away your SIMMs and start over if you need more than a couple of megs of memory. ASK THE SUPPLIER, that's always the best way to go about these things.

Please consider the A590 hard drive, that will allow 2megs of expansion ram and the difference a hard drive makes is staggering. Most of the time you will find that you will not need too much extra memory unless you are doing lots of graphic work.

If manufacturers send their products in for review then they will get tested. In the August issue of ***AUI****, we tested the GVP unit. A ram expansion was tested in the June issue. So things do happen, but not as quickly as some readers would like!*

Dear AUI,
I am finding a few problems with my Amiga and some of its peripherals, and being rather computer illiterate I would greatly appreciate some advice. I presently own the following: Amiga 1 Mb (What type? A500 or 2000? Andy) 1.3 kickstart, MPS1230 printer, Golden Image Scanner, Vidi Amiga and a second drive. My problems are as follows:

1. When printing artwork from DP2 either hand drawn or from Vidi, I get a printout which is very stripey on any dark areas. I've tried messing about with prefs but to no avail.

2. How can I load an image from my hand scanner into Kindwords 2. Every time I try the computer tells me the resolution is too great.

3. I have read umpteen times that in order to lessen the chances of a virus spreading, the Amiga should be switched off for approx. 12 secs. If I switch mine off, whenever I reboot the caps lock light flashes continuously and the keyboard is totally disabled. This does not happen if I just reset it using the keyboard. Is there a problem with my machine?

4. I recently purchased the

Prince of Persia, after playing it on a friend's machine. I booted it up but after a couple of seconds a message was put on the screen saying "load failed please try again", which I did several times with no luck. I took it to my friends' and it worked perfectly So I borrowed his copy only to get the same message. Since then I've tried loading with my peripherals unattached and my extra ram switched off but this has made no difference. All my other disks load so why won't this?

5. Can I boot my Amiga from my second drive and if so how?

Thank you for taking the time to read this and I'll really appreciate any advice that you can give.

Jenny Bell
Bangor
N.Ireland

Dear Jenny,
The stripes are normally caused by the mechanism of the printer not being quite up to the task that you are asking it to do. You will get better results if you use friction feed rather than tractor feed, and some people say that they get better output when they tweak the preferences paper size settings. It is caused by the paper not advancing quite far enough, by about half of a printhead pin. There is not a lot you can do about this, but thicker paper, thinner paper and messing about with the settings are all worth trying.

With the scanner, load the image into the DP and clip out the area as a brush and save it. You should be able to load that into the document.

Items 3 & 4 are probably related. A flashing caps lock normally tells you that something is wrong. It could be as simple as the chips need reseating or something more serious. Does this problem occur with all the peripherals disconnected? It is not quite clear from your letter.

You have eliminated most of the possible things with the game problem, so it is either a machine fault or your disk is at one end of its alignment range. It might be worth getting the alignment checked at the same time as the caps lock problem.

If you do not get the caps lock problem with your peripherals disconnected, you might be overloading the power supply a bit, and that can cause all sorts of strange effects.

It is possible to boot from other drives, there is a hardware thing that is called the boot selector, this has to be fitted internally (I think) and so it is a bit of a nuisance, but if you want to boot off another drive the hardware method is the best way.

Dear AUI,
Help!

I recently invested in a 1 Mb Amiga 500, mainly to use as a design aid for my business (although I must admit I've also bought a few games). Having just started buying computer magazines, and finding yours to be of superlative quality, I could think of no-one better to turn to in this hour or need.

My problems may arise from the ignorance of someone whose last encounter with a home computer was playing 'zaxxon' on a C64, and this letter may be too long or even stupid to even arouse your interest enough to read, let alone answer. Any help, however would be much appreciated, assuming it gets here before the Amiga takes an un-manned flight out of the office window.

The beige B*!~%*d in question is linked to a Harwood's 3.5" second drive and a Star LC-200 colour printer. I encounter no problems whilst working with the Workbench 1.3; my problems only begin when I load other software. Many of my programs crash during use: Kick Off 2 flashes annoyingly red and blue whilst displaying the league table, then gives way to an even more annoyingly blank white screen; Powermonger dies leaving me staring at a white arrow during about 50% of loading attempts; Deluxe Paint II (and now on a much less frequent basis) Deluxe Paint III gives me one of those ubiquitous Guru errors, kindly informing me that all will be resolved with the press of the mouse button, then cruelly depriving me of several hours work and Mrs. Jones from number 40 of her long awaited kitchen plan. T.V. Sports Football waits well into the fourth quarter, when, for the first time I'm actually into the computers half of the field then abandons the game due to a pitch invasion by the afore-mentioned Guru, and now Midwinter II does the same seconds before I've blasted the last treacherous runt who dropped me in it with the local gendarmerie.

Don't get me wrong, the Amiga's a great machine and these problems only occur on an intermittent basis, and only on those programs mentioned, but they're common enough for me to have all but given up on my particular mini marvel altogether. Seeing as, being a strong believer in capitalist ethics, all of my software is original. I clean the disk heads regularly, and the Amiga's never tasted coffee in its short life, I'm lost for an explanation for its ungrateful behaviour.

Originally I assumed that the problem was just one of those Amiga things, but I can no longer believe that a machine which commands such respect can treat all of its followers in this manner. Thus, the way I see it, I have several options:

1) Give up on the A500 and con one of those nice companies who offer part exchanges into giving me a 2000 in the hope that the problem was a one off.

2) send the Amiga back whence it came whingeing about my warranty (what will I do without it?)

3) Receive a nice reply from yourself informing me all my problems are due to gross ignorance and stupidity, and that I should have kept my Atari games console, Space Invaders et al.

4) Cry

5) Give my Amiga flying lessons.

Although I have probably far outstayed my welcome, I have a couple of other queries which you can hopefully help me with. (assuming I ever get the Amiga off the ground again)

The printouts I get from Deluxe Paint III all end up various shades of dark brown, red and grey, no matter which colours are shown on screen. Is this due to the quality of the Star LC 200 printer, the difference between the Amiga's and my Osume T.V.'s interpretation of colour, can it be resolved with enough messing about in preferences (God knows I've tried) or am I using the wrong printer driver (EpsonX[CBM_1250])?

And finally who needs Marco Gabbiadini?

Well enough moaning for now. Thanks for taking the time to read this, and for publishing a very lively and informative magazine. I'm off to find that Atari...

Glen Robson
Tyne & Wear

Dear Glen,
I don't know if I should answer a letter with such foul language in it... two five letter words (A...I...I...I...i) in one letter, that's a bit ripe!

O.K. I'll try....

The printer problem is the simple one. Wrong driver, use the Epson JX80 driver and see what happens. I have noted a couple of STAR drivers on CIX available for download. (Amiga conf)

Your other problem is a bit strange. I WISH you had noted the guru numbers they sometimes give a clue to what is happening.

You also did not mention what does work, that could be helpful. I get the impression that time plays an important role here. Time means temperature and hot computers are unhappy computers. Unplug the second drive and try running a troublesome program again. If that seems to help you might have a power supply problem. Worth checking that out, can you swap it over with a friends unit for a trial?. A loose modulator can cause problems as well, try using a direct SCART connection.

Loose chips in the computer can also mean trouble so you could try spanking the Amy (seriously, there is a large chip in the centre of the motherboard that has about 100 connections on it, and it has been known to get slightly out of alignment) turn the Amy upside down and give the centre of the case a good slap; that can often force the large chip to re-seat in its holder. (Spanking anything - or anyone, including Madonna - is. of course, at your own risk!)

If you are using your machine for business, then the A2000 is a better machine, and it is also much more robust. You SHOULD NOT be having these problems. The odd crash maybe, especially if you are running lots of programs. Just check your machine with a good virus checker in case one has crept in.

I run my machines for up to 10 hours at a time using lots of applications, and I do not get any problems not of my own making in the normal course of events. I have come across problems of dirty mains and 'brown outs' (the voltage drops below standard but does not cut out completely) causing problems. A good mains filter will sometimes cure that problem. (Do you have a heavy load switching on intermittently nearby or on the same ring main? A kettle, washing machine etc.)

Keep checking what is going on when the system crashes, that way you might find the problem. Other than that sending the machine back with a VERY COMPLETE description of the problem could be the only real answer, and maybe an exchange machine. Have a chat to the supplier, sometimes they can be surprisingly helpful.

Who needs Gabbiadini.... I DO ! Very nice dunked in a cup of tea!

AVIDEO 24 bit Graphics
With TVPaint 1.5

24 Bit Graphics for the Amiga A500 - A3500.
At a Broadcast PAL Resolution of 768 x 580
Take a look at the future of the Amiga !! TODAY !!

Why You Want AVIDEO 24

Are you fed up with the fringing of HAM images, when used with the amazing Digi-View, and other true colour digitizers?

Do you want the best possible quality look for your Ray Tracing package?

Do you want razor sharp images in the best resolution and not be able to make out any pixel stepping?

Do you want to overlay Amiga graphics and animations on top of 768 x 580, 24bit (16.8 million colour) or 12bit (4096 colours) Images and then have this on top of live video?

Do you want to run the Amazing 24 bit TVpaint version 1.5 system. Please note that TVpaint needs 68030 processor and 4mb or more fast ram.

Do you want a double buffered 12 bit, 768 x 580 display for high quality animation?

Do you want this quality without the high price normally associated with 24 bit?

Yes? Then You Need AVIDEO 24

Ask about AVIDEO 12
Only £249.00

What Do You Get ?

1. Broadcast Quality resolution of 768 x 580
2. 16.8 million colour, 1.5mb frame buffer.
3. Double buffered 12 bit colour display.
4. Small easy to fit circuit board.
5. Overlay Amiga Graphics and Animations.
6. Low Price for such a high specification.
7. Runs the best professional paint package.
8. Works well in conjunction with HAME.
9. Fully Genlockable as normal.
10. Runs on an A500 with small case mod.
11. Comes with 24 bit paint package.
12. Comes with Opera software, this amazing Arexx server software allows multi-media functions such as wipes and fades, and much more, on standard Amiga graphics, and also have full control of the AVideo 24 card.
13. Allows Picture in Picture function with still images, ie 16.8 million or 4096 colour images in a window on Workbench etc.
14. Load each 12 bit buffer in 3/50ths second.

Do you need more reasons to buy it.

All this including TVpaint 1.5 for only £ 599.00 inc vat

CHECKMATE DIGITAL LIMITED

Distributed exclusively in the UK by
Checkmate Digital Ltd,
80 Mildmay Park, London N1 4PR
Tel 071-923 0658 Fax 071-254 1655
BBS 071-923 2608

I-C-P-U-G

the Independent Commodore Products Users Group is the largest and most friendly computer club in the country

* Over 1000 disks of Amiga Public Domain & Shareware Software entirely free to members - you supply blank disks and pay only for postage.
* Superb 100 - page magazine published every two months- keep up to date with latest Amiga hints and tips. Get the news from America first!
* Meet other Amiga users at one of our local groups which meet regularly all over the country.
* Help and advice services - hardware or software problems can be quickly resolved.
* Discount scheme makes purchases easier! Save money on hardware add-ons and software.
* Subscription for 1992 only £19 including £1 joining fee.
* Overseas prices on application.
* FREE software library catalogue disk when you join the group.
* Want to have a look before committing yourself? Back issues of the magazine from 1991 to all at £2.50.
* We support ALL Commodore machines with extensive software libraries and help services.

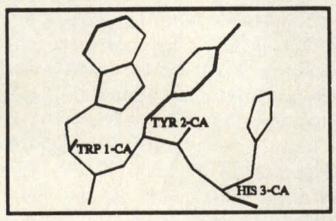
If you are seriously interested in using or programming your Amiga or indeed any Commodore Computer then joining ICPUG is a must!

For full details send a stamped addressed envelope to: **ICPUG Membership Secretary, Jack A. Cohen, PO BOX 1309, LONDON N3 2UT or Telephone 081-346 0050 after 6.00 p.m.**

MoG

Molecular Graphics Software for the Amiga

Build and examine structures of organic molecules, proteins and DNA.



Ideal for students, teachers and researchers in Chemistry, Biology and Biochemistry.

£100 Inclusive
£60 Academic Price

Maths co-processor version also available

Send for free information and a demo disk for only £3.00 (Refundable with order)

Also available:
AMPlot PostScript graph plotting software.

SciTech Software, 23 Stag Leys, Ashtead, Surrey. KT21 2TD. Tel.: (0372) 275775

DIRECT FROM AMERICA
LOW PRICE AMIGA CHIPS & UPGRADES

8372A (PAL) 1 Meg Agnus	£31.30	5719 Gary	£10.44
8372B (PAL) 2 Meg Agnus	£46.40	8362 Denise + bright	£13.90
1.3 Kickstart ROM	£19.70	1 x 4/80 Static Column Zip	£15.60
A500 Keyboard-factory new	£40.60	8520A CIA (2MHz) Great price	£6.35

A500 PC Motherboard-PAL, populated & tested - complete £115.40
A2000 PC Motherboard-PAL, populated & tested - Includes the 1.3 Rom, 8372A 1 Meg Agnus & Super Denise 8373 installed (factory new) £301.60

UPGRADE YOUR A500 TO THE A500 PLUS
8373 SUPER DENISE - £24.90
Add productivity mode, superhi-res mode, scan mode, genlock capability & superhi-res capabilities

2.0 Upgrade Kit: Just released. Contains ROM, 1, 000 page manual and diskettes £50.75
STU (System Test Utility): Very popular complete diagnostic trouble-shooting program for all Amiga computers £19.20
Amiga Diagnostician: Diagnose up to 28 common problems. Comes with diagnostic software and booklet. Save time & money by locating faulty chips yourself £9.86
The Final Test: Diagnostic diskette tests keyboard, display, graphics, Workbench, sound, timing, realtime clock, RAM, etc. (12 diagnostic programs in all) £6.95
Printer Port Adaptor: Runs any CBM C64/128 printer to PC compatible (great seller) ... £20.30
MegaChip 2000 by DKB: Upgrade your A500/A1500/A2000 to 2Mb of chip RAM. Includes 2 meg Agnus, chip puller & "Final Test" diagnostic diskette (no soldering). Same 8372B chip used in A3000 ..... £173.40
Buy the MegaChip from us and we'll give you the new Super Denise for £17.00
Switch-Itt by Global Upgrades Inc. Electronic ROM selector switch for 1.3 or 2.0. Makes all your software compatible. Keyboard or mouse controlled. Does not overlap the 68000 - allows for accelerator, etc £26.50

A500 PLUS RAM EXPANSION
AdRAM 510 by ICD: Take your A500 Plus up to 2Mb of fast RAM (inc battery) Newly designed just for the NEW 500 PLUS **£47.50**

AdRAM 540 for A500 by ICD: Add up to 4 megs of RAM with battery backup internally in your A500. 1 Meg/2 Megs ..... £74.20/£95.15
AdSpeed by ICD: Best accelerator in its price range £118.90
Flicker Free Video by ICD: Eliminates interlace flicker £163.50
Flicker Fixer by Microway (PAL) £130.50

DO NOT FEAR!

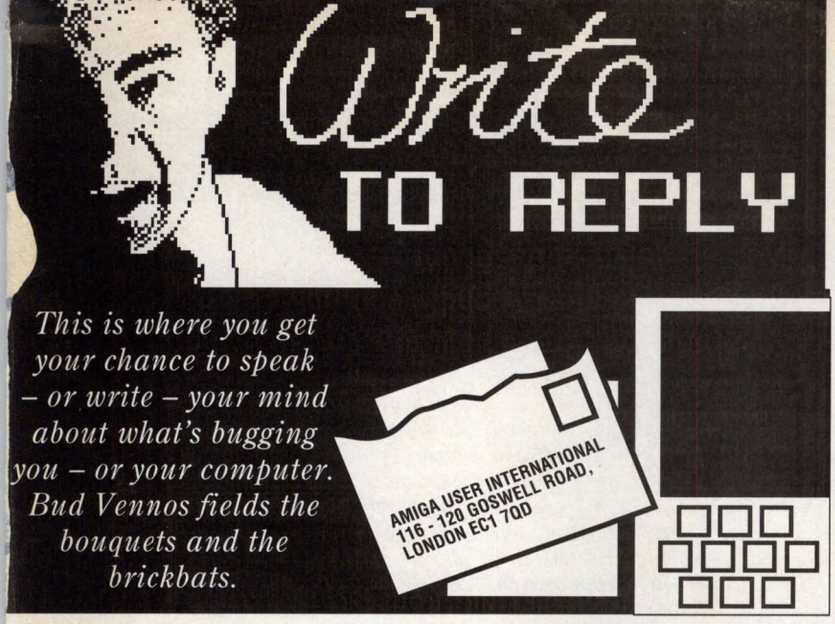
Buying directly from the U.S with your credit card offers you the same protection as it does in the U.K. with the added benefit of saving lots of money. Deal directly with North America's largest distributor of custom Commodore & Amiga parts and chips. The Grapevine Group has been successfully servicing the U.K. and the Continent for 12 years. All our parts and chips are new and guaranteed for 90 days.

PRICES JUST REDUCED

SEND FOR OUR FREE 36 PAGE CATALOGUE
THE GRAPEVINE GROUP INC.
3 Chestnut Street, Suffern, New York 10901 U.S.A.
International Fax: 0101-914-357-6243
Customer Order Line: 0101-914-357 2424
Telephone Hours: 1pm to 11pm Mon-Fri British time

NO VAT NECESSARY

Prices subject to change **International Orders:** If your order is over £40 send or fax front of credit card. **Air Parcel Charges:** All chips - £5.36 Keyboard & PCBoard - £8.40 2.0 Kit - £22.62



This is where you get your chance to speak – or write – your mind about what's bugging you – or your computer. Bud Vennos fields the bouquets and the brickbats.

Dear AUI,
I am writing to tell you of my experience with two computer peripheral suppliers. The first of whom are Bytes and Pieces, from whom I ordered a 210MByte hard drive, interface and RAM expansion in November 1990. The hard drive was in stock, but the interface was not and I was informed that the equipment would be delivered when the interface arrived. Problems with the interface caused long delays, and when it was eventually obtained all stocks of the hard drive were sold. This was annoying as one should have been reserved for me. I was offered another hard drive which was on a special reduction, but still more expensive than the original. I reluctantly accepted.

The equipment arrived, but did not work when installed. The hard drive was returned and a replacement sent, only for a fault to occur on the interface. A replacement interface was sent which was also faulty and the company implied that the fault was with my Amiga. But, my computer was OK and it was March 1991. More equipment followed, but the problems continued and my computer was still OK. In August 1991 the second company, Omega Projects, took a hand in the matter and verified that the hard drive equipment was faulty. They took the matter up with Bytes & Pieces and more equipment was exchanged. This equipment was also faulty - it was September 1991! At this point, I managed to obtain a refund of my money from Bytes & Pieces and approached Omega Projects with regards to buying the equivalent equipment. They not only supplied me with better quality GVP & Quantum equipment, but loaned me equipment to use while mine was on order. Furthermore, I was charged NET price as a gesture of goodwill.

I cannot express enough how grateful I am that Omega Projects took over my problem and successfully solved it. I believe that Bytes & Pieces is now bankrupt, which instigated me to write this letter. If anyone should wonder why I took to sending through mail order instead of buying locally, it was because my local suppliers had neither the commitment to the customer or the ability to supply the required goods. I can assure everyone that where I am concerned Omega Projects are first class.

Peter R Capstick,
Leeds.

Dear Peter,
We too have found that Omega Projects are a good company to rely on. Bytes and Pieces did go into Receivership. But from your account, they did not offer a good service. Whatever their reasoning may be, they seem to have exhibited an appalling lack of customer care. So perhaps justice was done. It's often those who do not give good service who disappear, in all walks of life.

Dear AUI,
I have enjoyed reading your informative magazine. Even if it is a bit pricey in Australia, $9.50, when local magazines are only $3.50. But your magazine has such a broad coverage and detail, it more than compensates the cost difference. And on top of this we sometimes even get a free disk? November issue's disk was missing, I went and asked the newsagent, who followed up and told me that there was no disk shipped with the issue to Australia? Keep up the good work because I will certainly be purchasing your fine magazine.

Alan Field,
Australia.

Dear Alan,
We do try to cover all aspects of the Amiga in what a 15 year old reader described to me as a 'mature' way.

*But I am alarmed that you only get the Userdisk 'sometimes'. There is always a free disk on the **AUI** cover. Any newsagent who says differently should be told to go back to the distributor and get one for you. When they leave us there is one on the cover. We are sending you the November disk to make up for the missing one.*

Dear AUI,
I very much enjoy reading your magazine and find it very informative. However due to lack of personal funds (having wife, children, and a mortgage) I can only buy your magazine when it has things of definite interest to me in it. The January 1992 issue was one of those. Unfortunately when I got home after a hard days work the first thing I did was to try the cover disk. To my disappointment it did not work. After running DISK DOCTOR the following fault was found (track fault side 1 track 0). This can only be put down to the use of cheap poor quality disks. I hope this letter will spur you to use a better quality of disk or some method of error checking.

Ian Justice,
Manchester.

Dear Ian,
May I say that we give a guarantee that if a disk doesn't work we will supply a replacement FREE of charge. The address for using this service differs from our editorial address and can be found on the Userdisk explanation pages within any copy of AUI. If you had sent us your disk with the letter we would have passed it on, but if you still have your faulty Userdisk please use this service.

The quality of our disks vary from batch to batch, but we don't get many failure returns, and if we do they are sorted out pretty quickly by using the FAULTY DISK guarantee. When duplicating tens of thousands of disks, it is would be impossibly expensive, to ensure that every single disk is error free, so batch checks are made. Normally the failure rate for disk duplication is less than 0.01%. That includes game, application, and magazine cover disks.

It is infuriating when you buy a disk which doesn't work, and I can sympathise with your plight, but unless you have a constant problem with the quality of the disks we use (if so please tell us), I can only suggest that you have been unlucky.

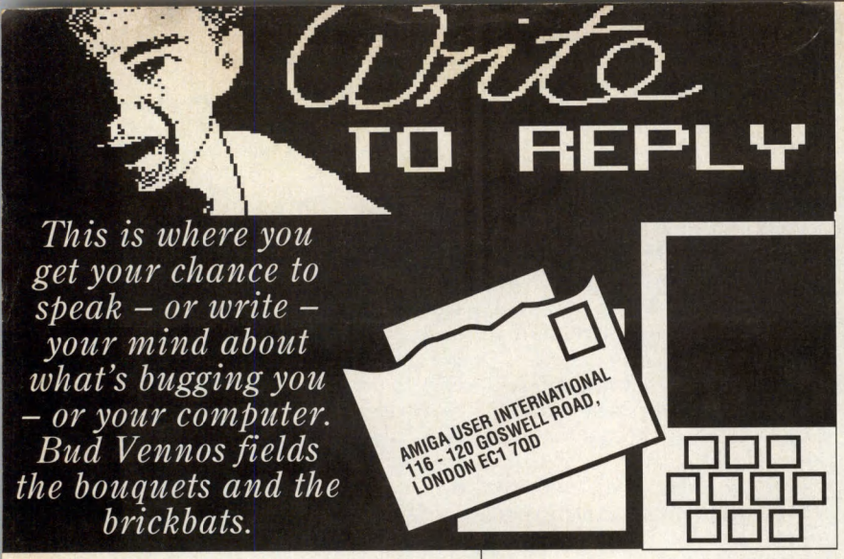
Dear AUI,
I have to say that the graphics pictures you showed in the "Picture This" results in the January ***AUI*** were absolutely stunning. I don't personally agree with your decision in favour of the winner. I think the "Taps" picture was fantastic and deserved the first prize. But that is a personal thing, I suppose.

But the photographs of the DCTV in the same magazine looked totally amazing and what I want to know is whether you think that this kind of package won't take all the skill out of making the kind of pictures in the "Picture This "competition. I suppose what it comes down to is computer art at that technological level just a technological technique.

I have only just got an Amiga (an A500 bought second hand from someone who has upgraded to a 1500) and as a foundation year art student I'm finding it very exciting. But if anyone can get hold of a DCTV and create pictures like you show, what is going to happen to people like me who want to make a living in art?

Rod Lloyd-Bennett
Croydon, Surrey

Dear Rod,
No need to worry. The terrific pictures we had in our competition were the result not of the Amiga but of the talents of the people using it. It was their imagination and skill which allowed their Amigas to pro-



This is where you get your chance to speak – or write – your mind about what's bugging you – or your computer. Bud Vennos fields the bouquets and the brickbats.

duce the marvels we reproduced. It was the talent - even genius - of people like Jay Miner and R.J.Mical that created the Amiga in the same way. Anyone could have thought of it - the technical tools were there - but it took a special cast of mind and the imagination to do it.

If you are involved in art, you will already know that it isn't the paintbrush but the hand on it that makes the difference between an ordinary painting and a masterpiece. The same will apply to computer art. It won't be the DCTV or even the Toaster that will turn out amazing things on the Amiga but whoever is sitting at the controls and deciding what is going to appear.

Yes, technology is going to offer more people the chance, especially as prices of terrific new software and hardware that comes on the scene fall. So we are probably going to se a lot more high quality stuff in all areas. But that only means that the competition will be tougher - it doesn't mean that real talent - like murder - won't out.

Dear AUI,
When are Commodore going to let the rest of us who have A500s get into the the Workbench 2.0 act? Your articles on 2.0 are all very interesting and even mouthwatering but what's the use of printing them if you've got to buy a new A500 - the Plus - to get into the game?

Pierre Warters.
Norwich

Dear Pierre,
Your wishes are answered. We got onto Commodore immediately and lo and behold in the Newsfile this month there it is! Don't say we don't move mountains for you. Coincidence? Nonsense!

You will shortly be able to buy into that wondrous 2.0 world for around £80.00. Not cheap but no doubt you will find it all worthwhile. Anyone else have wishes that the AUI magic lamp can fulfil? Your wishes are our commands!

Dear AUI,
Being an avid games player, as well as interested in more serious applications, I am disappointed in the games coverage given in ***AUI***. There are rarely recent games being reviewed, and most are really old. For example where did you get Exile? At a car boot sale?

The rest of the magazine is fine but why don't you sort out the games section?

Paul Bowles,
Leeds.

Dear Paul,
As you know, ***AUI*** *concentrates on the serious side of the Amiga, because that's where all our hearts lie, but we do see the need for games coverage to report all aspects of the Amiga. The games we review are usually choice products we think you'd like. So, we don't really think that they have to be reviewed alongside their release dates. Exile was a good game and we thought you aught to know about it. We could have left it out because it was already in the shops, but we thought better of the game than to see it go unreviewed. Not everybody goes out and buys a game straight away, and games, unlike say films, don't appear for a week locally and disappear. And plenty of magazines rush into print with only a beta version to review. We don't.*

Dear AUI,
In the review of the VirgoRAM board the reviewer, Norman Stone, says that it gave him 1 Megabyte of chip RAM when, before installation, he only had a 0.5Mb Agnus. I find this hard to believe since the manufacturers of the board find it hard to believe. Did Norman Stone know what he was talking about, or was the copy mixed up in the editorial process?

Mark Stewart,
Sheffield.

Dear Mark,
I'm afraid there has been some confusion. Norman Stone's article did not say what you are implying. It clearly states that the Virgo 2Mb board will configure as CHIP RAM if a Fat Agnus is installed. Norman does have a Fat Agnus (1Mb CHIP RAM) installed.

The confusion is in that he only had 0.5Mb of memory before installation. He was not astounded that the VirgoRAM board turned his vanilla Amiga into a 1Mb CHIP RAM machine automatically, but that it configured 0.5Mb of its total 2Mb RAM as CHIP RAM. Many expansion boards do not. I hope that has cleared up the confusion.

Dear AUI,
The main reason I am writing to you is that I need a good file copier to allow me to make backup copies of my games and serious software. May I say that I hate piracy. I used to swap games and stuff in my C64 days, but I can now see how stupid and immature that was.

Now that I have an Amiga, I have had loads of opportunities to receive pirate games. I am pleased to say that I didn't take any, but prefer to buy my games and think that if you choose carefully you can get some good deals.

Anyway back to the point of my letter, can you recommend a good file copier for making backups? I am not bothered about anything being compressed, I just want exact copies.

Kevin Davidson,
Plymouth.

Dear Kevin,
I have no intention of recommending any copiers, because you are not allowed to take backups of games and virtually most serious software. If the program stipulates that you may back it up you will be given the opportunity to do so from Workbench, or via a pre-written program on the disk.

As I've said in the past, on numerous occasions, it would be nice if copies could be taken legally in case the master disk becomes corrupt. However, it is not legal, and I tend to agree with the software companies on that. They will give you another copy of a program (which you may have damaged) for a small administration fee, as long as you supply the master disk and the box - as proof of purchase. It's quite simple.

Piracy could kill off the Amiga yet! Consoles have attracted the might of the big publishers who are now only developing for the Segas and Nintendos, where piracy tends to be small compared with computer piracy. In the next few years you may find that compact discs will be the media for commercial software. That may even save the Amiga from software starvation.

Dear AUI,
I feel compelled to write so other readers may appreciate how helpful their wives can be when everything is not going to plan.

My husband has just bought a Star LC24-200 colour printer for his Amiga. He spent days using every combination possible, trying to do a graphic screen dump.

Well, after looking at some chapters in the manual I asked him if he had been in the system drawer and initialised the printer. I'll never forget the look on his face. He now spends many an hour printing colour pictures of Garfield, spaceships and tigers.

The lesson he learned is, even though the wife might think a workbench is found in the garage and shell is a type of petrol, she can already read his instruction book while the husband uses trial and error.

Mrs Emily Stokes,
Brighton.

Dear Emily,
It just goes to show that the Amiga is a computer for all sexes (and ages). It also shows that females can be better readers.

If anyone else is in trouble with their Amigas they should contact Andy Eskelson. His mum usually answers all the questions as Andy spends too much time in the garage!

NEWSAGENT ORDER FORM

By placing a regular order with your newsagent you can be sure of receiving ***Amiga User International*** every month. Complete this coupon and pass it on to your newsagent.

Dear NEWSAGENT,
Please reserve/home deliver _____ copies of ***Amiga User International*** every month for:

Mr/Mrs/Miss .....

Address .....

.....

Telephone No .....

Amiga User International is published on the 1st Thursday of every month. Any distribution queries to: **Comag Magazine Marketing, Tavistock Road, West Drayton, Middlesex VB7 7QE. Telephone: 00895 444055**

Where to find them! The *AUI* Advertiser Index

COMPANY	PAGE _NO
AJPDL	42,43
AMIGA BANDITS	26
AQUARIAN PD	99
ARK	128
BIRMINGHAM INTERNATIONAL SHAREWARE	102,103
BLITSOFT	128
CHECKMATE	142
COMPLEX COMPUTERS	60
FANTASIA	44
FMG	34
FUJITSU	23
GLOBAL SOFTWARE	115
GRAPEVINE	142
HISOFT	87
HOBBYTE	12
ICPUG	142
INTERMEDIATES	10,11
INTRASET	66
KOSMOS	129
MARCAM	56
MICRODEAL	82
MINDSCAPE	17
NAKSHA	31
NBPDL	129
OMEGA PROJECTS	99
PLC	128
POWER COMPUTING	IFC,3,49, 65
ROMBO	IBC,OBC
RSD	41
SCI-TECH	142
SILICA SHOP	71,95,109
SILVERBIRD	115
SOFTLOGIK	50
TK COMPUTERWARE	128

The Fat Lady Sings

Vol.24 **Nº 45 16/17**

Aunt sirs. pleez!

Auntie Fat Lady has a mountain of letters that arrive daily from poor agonised Amiga users pleading with her to resolve all their problems. As Auntie Fat Lady says modestly. "It's only to be expected of the Universe's greatest expert on the Amiga and everything else, isn't it dear?"

She dictates her answers to one poor trembling Chippendale-style hunk who shakes even more at the dulcet tones that would shatter a monitor screen at 25 paces.

"Letter Number One. The answer is Yes, Marion Tooterage, a joystick may be used for that purpose but be sure the autofire is switched off."

"But Auntie Fat Lady,"the secretary cries," Don't you think the readers would like to know what the questions are?"

"Why? Oh very well then...

Dear Auntie Fat Lady,
I am confused by what a sprite is. How can I see one on my screen?

Anthony de Angli.
Crawley, Sussex

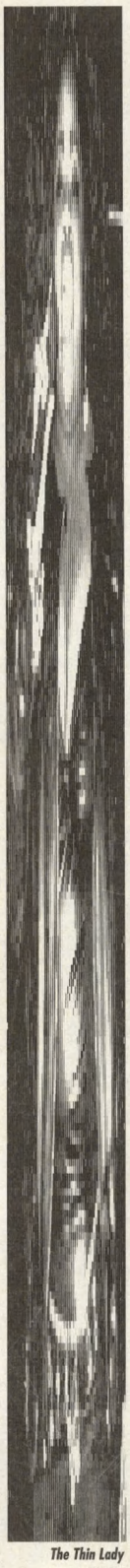
Dear Anthony,
A Sprite is a canned fizzy drink very like lemonade. It can be bought in any good supermarket. Why you should want to see one on your computer screen I cannot fathom but if you do you do, I suppose. The best way I can think of is to bore a small hole in the bottom of the can and place the can on top of your TV or monitor. The Sprite should then run down and be visible on the screen. It will probably be rather disgusting but then it should suit you for you sound a rather disgusting person to me and frankly I wouldn't let you near my machine. Please stop reading ***AUI****.*

Dear Auntie Fat Lady,
I have tried everything but I cannot get my printer port to work.
Can you help me?

The Very Reverend Claude Nosetrip
Beckhampton, Surrey

Dear Reverend Nosetrip,
I am not Alcoholics Anonymous. Anyway I always drink Cockburns (and it does sometimes).

Dear Auntie Fat Lady,
What is the "Avail Command" that people like John Kennedy, Reggie Stair and Paul Overaa are always talking about? Does it really exist or are they just having poor amateurds like me on? Please explain and put me out of my misery.



The Thin Lady groans

William Gates, Coney Island, U.S.A.

Dear Bill,
I have to tell you that John Kennedy, Reggie Stair and Paul Overaa (and if it comes to that Pat Kelly and Gary Fenton too) don't really exist. They are a part of a supposedly very clever – but not really very clever – computer package put out by a company called Boreland for people who run magazines. So as the program is not really that clever it couldn't be having you on, could it? The "Avail Command "does however exist. It comes from the song "Oh boy, the struggle naught availeth!?" which Buddy Holly wrote for the original launch of the Amiga in 1954. At that time, of course, the computer wouldn't work because the chips hadn't been invented. They struggled with it though and installed it in an airplane which later crashed with Buddy on board. Hence the song. The computer world is a strange one , isn't it? (And I've never heard that expression "Amateurd" before but I'm sure it describes you very well, I'm sure.

Dear Auntie Fat Lady,
I have read a lot about AMOS especially in a magazine AMOS Computing published by AFROPRESS. They haven't paid me much to write this letter but I would like you to tell me in a few hundred pages what this marvellous program is and why everyone should buy it direct from AFROPRESS (£89.99 Visa and Access welcome).

Hedley Verity (Mrs)

Dear Hedley (Mrs)
You have got entirely the wrong end of the stick about AMOS. It is not a program at all. (I have looked it up in the Radio Times and I can assure you it is definitely not there.) What it refers to, of course, as an avid AUI reader you should know, is our Adventure Now writer Andy Mos. Andy is well known all over the world as always ready for an adventure (I've had a few with him myself!). No doubt he has visited Africa many times in the course of his adventurous duties and that is why AFROPRESS (Are they based in Nigeria or is it to do with the hairstyles of the people who work there?) are publishing his memoirs, I expect. Still £89.99 does seem a bit steep but perhaps it contains some of those photos of his adventures that Andy only shows to friends of very private press launches held by Electronic Arts, Virgin Anita Sinclair, etc. (I am the one in the black negligee between Mark Lewis and Richard Branson). By the way, wasn't your husband a Yorkshire cricketer who played for Macclesfield before the First World War? If so I think you must be too old to get involved with Andy Mos and his rather wild crowd.

Dear Auntie Fat Lady,
I have heard a lot about Fast Ram. Do I need more of it than I already have in my new A500plus to run games? I am am sure you can tell me what it means.

Thank you,

Sam Attarree
Brick Lane, London

Dear Sam,
With your new A500 you have 2 Megabytes of Fat RAM - not Fast Ram. Commodore were desperate to find something new to put with their Xmas pack, so they gave away 2000 sheep with each computer sold. It was a very effective sales gimmick. One of their senior executives will shortly be calling at your home herding the sheep into your garden. I agree they could have made the incentive clearer by calling it Fat (or as you read it Fast, don't you think you should see an Optician?) Sheep instead of RAM. But with this economic recession people will do anything to sell things, won't they? By the way, you cannot have an "A500plus" no such machine exists. Because if it were "A500plus", it would be incorrect English as it would have to be "plus somethimg", wouldn't it? Commodore would never make a mistake like that. Didn't I see you last week flogging STs down Petticoat Lane or was that your son? Never mind, dear, we've all got to start somewhere.

Dear Auntie Fat Lady,
Having bought my son an Amiga for his birthday, I want him to keep it as clean and tidy as his bedroom, which is nowadays much improved being only kneedeep in filth. Like all young people he lacks discipline and needs to learn to follow orders - as does his sister but that's another matter.

What I need from you is a list of the necessary operations for him to carry out when I wake him at 4.30 a.m. so that his Amiga will be in good running order, you know, ship shape and Bristol fashion, when I let him start to use it in few years time. He is 39.

Admiral Marky de Sade (retired)
Chathamup Cottages
Dartmouth

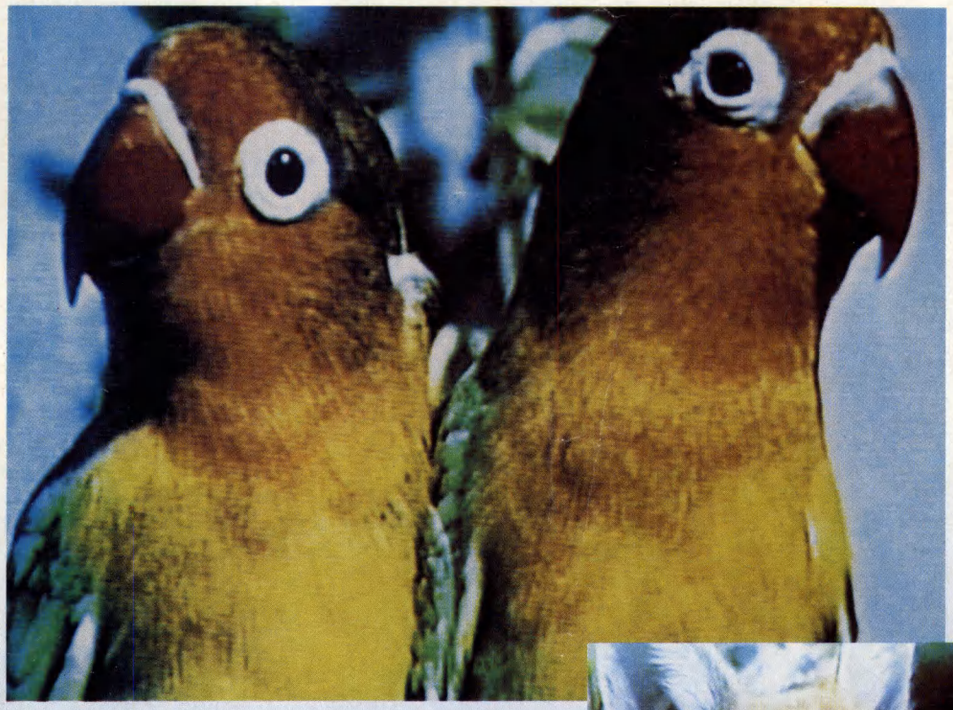
Dear Marky,
I know what you mean about disciplining young men, there's nothing like it, is there? And you are right the Amiga must be attentively cared for. So here goes: Never use the computer unless it is switched on and certainly never use an A500 without a power supply. Keep the Keyboard in a Keyboard Sock (available in any good men's outfitters) to protect it from Guru's Foot. Always keep the monitor pointing toward the wind - as an old Navel man you no doubt already know that. When playing games, make sure feet are firmly on the joystick. Always ensure the drive is face downwards - otherwise the disks may jam (If one does, release it carefully by using a size 16 chisel and a hammer weighing no more than eight pounds (6 kilos).) Keep the jumper leads well wrapped in wool. Ensure that the trapdoor on the A500 is always securely closed by opening it and pouring in hot sealing wax before slamming the door shut. If you wish to spring clean the inside of your Amiga this Summer, always soak the chips in very good quality malt vinegar or Heinz tomato ketchup. Get your son to follow these simple instructions and you never need worry about him misusing his Amiga Swish!.

If you want Auntie Fat Lady to solve your problem, write to her C/o The FLS Problem Clinic (Sexual and Amiga Diseases Department, Director, the late Dr Gwynne Harper), *AUI* House, Macao. enclosing 1 megabyte in used pesetas.

THE COMPLETE COLOUR SOLUTION

£179

Vidi ... No 1 in UK & Europe (Leading the way forward)



Get the most out of your Amiga by adding:

"The Complete Colour Solution"

The Worlds ultimate creative leisure product for your Amiga. Capture dynamic high resolution images into your Amiga in less than one second.

And Look No Filters

Images can now be grabbed from either colour video camera, home VCR or in fact any still video source. The traditional method of holding three colour filters in front of your video camera is certainly a thing of the past. Because Vidi splits the RGB colours electronically there are no focussing or movement problems experienced by some of our slower competitors. Lighting is also less of an issue as light is not being shut out by lens filters. Put all this together with an already proven Vidi-Amiga/VidiChrome combination and achieve what is probably the most consistant and accurate high quality 4096 colour images ever seen on the Amiga.

The colour solution is fully compatible with all Amiga's from a standard A500 to the ultimate A3000. No additional RAM is required to get up and running.

You will see from independant review comments that we are undoubtedly their first choice and that was before the complete solution was launched. If you have just purchased your Amiga and are not sure what to buy next, then just read the comments or send for full review and demo disk.

Actual unretouched digitised screenshot

Features ...

- Grab mono images from any video source
- Capture colour images from any still video source.
- Digitise up to 16 mono frames on a 1meg Amiga.
- Animate 16 shade images at different speeds.
- Create windows in both mono & colour.
- Cut & Paste areas from one frame to another.
- Hardware and software brightness & contrast control.
- Choice of capture resolutions standard & Dynamic interlace.
- Full Palette control.
- Add text or draw within art package.

Amiga Computing: The best Amiga digitiser has had the technicolour treatment. Vidi must be one of the most exciting peripherals you can buy for your Amiga.

Micro Mart: When I first saw Vidi "in the flesh" as it were, at the CES show last September it looked to be the answer to a frustrated Digi View owner's dreams – in fact to see pictures appearing on screen without the customary two minues wait seemed almost too good to be true. I have consistently produced more good quality pictures in the short time I have had Vidi than I ever did with Digiview.

Zero: Now under normal circumstances cheap usually means poor quality but this is not the case with Rombo. Why? cos Vidi-Amiga is the best digitiser for under £500 and I've tried them all.

Amiga Format: Where quality is concerned, Vidi produces some of the best results I've seen on any digitiser at any price.

Amiga User International: The latest addition to the Rombokit is called Vidi-RGB and brings this already impressive package to the realms of totally amazing. CONCLUSION: Who will find Vidi-Amiga useful? The answer to this is almost anyone with a video recorder or camera and a passing interest in graphics.

*Full colour demonstration disk available for only £1.95 to cover P&P.***

2 Baird Road, Kirkton Campus, Livingston, Scotland EH54 7AZ. Tel: 0506-414631 Fax: 0506-414634

ROMBO Limited

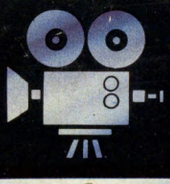
COMPUTER ANIMATION FROM VIDEO

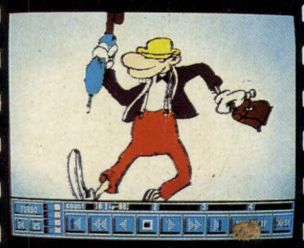
PRICE £99.95 INC. VAT

TAKE 2

MR ROMBO

- Take 2 is compatible with any Amiga.
- Supports 2, 4, 8, 16, 32 and Ham colour modes.
- Load and Save IFF images or D. Paint Anims.
- Uses traditional animators Dope sheet layout.
- Up to 4 levels of animation and 4 channels of sound.
- Playback at 24 or 25 frames per second. (Real Time).
- Further manipulate your image within any popular art package.
- Add "Vidi-Amiga" or The "Complete Colour Solution" to digitise your drawings or images directly from within **Take 2.** This will allow you to draw with a pencil, its easier than a mouse.





These Images have been drawn with a pencil, digitised then coloured using D. Paint 3.

APPLICATIONS

- Traditional animation.
- Storyboards
- Product presentations.
- Home line tester.
- Cartoon Productions, both visual and sound.

Take 2 is a must for computer artists and enthusiasts of any age. It will cater for both amateur and professional applications. So get the most out of your computer and open up your imagination to **Take 2.**

CONTENTS

- Comprehensive and easy to follow manual.
- Disks
- Sample sounds and animations.
- Animators Peg Bar (to hold your paper into position while drawing or digitising). Example line drawn animations for you to get started with.

PAL OR NTSC VERSIONS AVAILABLE

ROMBO PRODUCTIONS
BAIRD ROAD LIVINGSTON SCOTLAND EH54 7AZ
☎ (0506) 466601

FOR COMMODORE — AMIGA — (ALL MODELS)

ROMBO